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GLOBAL DATA MONITORING REPORT

December, 1995

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis. The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIBU observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At RSMC Bracknell, for synoptic stations at or below a height of 500 metres, reported mean sea-level pressure is used in the statistics. If this is unavailable the mean sea-level pressure is calculated from the reported station-level pressure and temperature.

For synoptic stations above 500 metres, the mean sea-level pressure is calculated from the reported station-level pressure and temperature, or, if these are not available the height of a standard pressure-level (e.g.: 850 hPa or 700 hPa). If neither of these are available, the reported mean sea-level pressure is used.

Some stations vary their reporting practice according to the observation hour (e.g.: some stations in the CIS report both mean sea-level and station-level pressure at 00 & 12 UTC, but only mean sea-level pressure at 06 & 18 UTC). For monitoring purposes, reported mean sea-level pressure is stored separately from that calculated from station-level pressure or height of a standard pressure-level. Only statistics for the preferred method (see above) are presented in this report, and so for certain high-level stations, such as those from the CIS, approximately half of the number of observations actually received will appear in the statistics.

Aircraft observations

TABLE 4 contains a list of statistics calculated from data received from all airline carriers.

Figure 3 shows 10 degree lat/long box average numbers of AIREP/ASDAR reports received per day throughout the month at Bracknell and assimilated into model runs in the layer 70-500 hPa. Observations with a vector wind difference (compared with the model background field) of >60 ms^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4-7 show wind statistics for AIREP/ASDAR in the layer 70-500 hPa. Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-27 show satellite mean observation-background temperature differences for NOAA-12 soundings at 500 km resolution and figures 28-30 show the same statistics for NOAA-14. Data are plotted where there are > 30 observations in a 10 degree lat/long box.

Figure	Layer (hPa)
25/28	850-1000
26/29	100-300
27/30	30-50

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area
10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

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Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH:December, 1995

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from Bracknell global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored
:Mean sea level pressure (hPa).
:Wind speed ($m\ s^{-1}$).
:Wind direction (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT
:15 hPa (pressure)
:25 $m\ s^{-1}$ (vector wind)

SELECTION CRITERIA :NOBS ≥ 20 , and one or more of the following:

1.|bias| ≥ 4 hPa (pressure),
≥ 5 $m\ s^{-1}$ (wind speed),
≥ 30 degrees (direction).

2.SD ≥ 6 hPa (pressure),
≥ 80 degrees (direction).

3.PGE ≥ 25

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 $m\ s^{-1}$

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE									
C6FA6	ALL	MSLP	SUR	28	0	0	1.2	-6.2	6.3
C6IL3	ALL	MSLP	SUR	24	0	0	1.3	7.0	7.1
C6MP9	ALL	MSLP	SUR	43	0	0	1.5	-6.7	6.9
D5NE	ALL	MSLP	SUR	47	1	2	1.5	6.5	6.6
ELIU2	ALL	MSLP	SUR	29	0	0	1.6	4.7	5.0
ELLY4	ALL	MSLP	SUR	20	0	0	1.7	-4.3	4.6
ELNG6	ALL	MSLP	SUR	41	9	22	1.0	-13.5	13.5
ELSM7	ALL	MSLP	SUR	20	0	0	1.2	-5.0	5.2
LACF4	ALL	MSLP	SUR	95	0	0	2.6	-6.0	6.5
NHWR	ALL	MSLP	SUR	32	0	0	1.2	-5.0	5.1
OZBL2	ALL	MSLP	SUR	57	0	0	1.0	7.8	7.8
P3XM4	ALL	MSLP	SUR	58	0	0	1.2	-5.3	5.4
UHZN	ALL	MSLP	SUR	21	0	0	1.6	5.7	5.9
UKGT	ALL	MSLP	SUR	38	2	5	3.1	-11.4	11.8
USNN	ALL	MSLP	SUR	65	0	0	1.3	-5.5	5.6
UTTT	ALL	MSLP	SUR	30	0	0	0.9	-5.1	5.2
VRUH6	ALL	MSLP	SUR	36	0	0	1.0	5.1	5.2
WAQ3520	ALL	MSLP	SUR	27	0	0	2.4	-5.1	5.7
WPPO	ALL	MSLP	SUR	35	1	3	1.8	4.1	4.5
WQZ9670	ALL	MSLP	SUR	45	0	0	2.8	-4.8	5.6
XCMG	ALL	MSLP	SUR	23	0	0	3.6	-8.5	9.3
YJWZ7	ALL	MSLP	SUR	44	0	0	1.6	-7.1	7.3
YLBF	ALL	MSLP	SUR	26	0	0	1.2	5.5	5.6
3EAY5	ALL	MSLP	SUR	27	0	0	1.2	-5.2	5.3
3ESE9	ALL	MSLP	SUR	34	4	12	0.9	6.2	6.3
9MBQ6	ALL	MSLP	SUR	25	0	0	1.4	-4.2	4.4
WIND SPEED									
ATPO	ALL	SPEED	SUR	28	0	0	3.7	5.3	6.5
CG2614	ALL	SPEED	SUR	72	1	1	3.3	-5.1	6.1
C6LC4	ALL	SPEED	SUR	21	1	5	4.4	10.8	11.6
ELMG2	ALL	SPEED	SUR	68	0	0	3.0	5.0	5.8
LACU2	ALL	SPEED	SUR	26	0	0	5.2	5.4	7.5
LAJY2	ALL	SPEED	SUR	21	0	0	3.6	5.6	6.7
LATF2	ALL	SPEED	SUR	46	2	4	7.4	8.7	11.4
LXAP	ALL	SPEED	SUR	32	0	0	5.5	6.5	8.5
S6BR	ALL	SPEED	SUR	20	1	5	5.4	6.7	8.6
VJDI	ALL	SPEED	SUR	24	0	0	4.6	5.3	7.0
VMAL	ALL	SPEED	SUR	21	0	0	5.2	6.2	8.1
VNAE	ALL	SPEED	SUR	39	1	3	4.9	5.3	7.2
VNGG	ALL	SPEED	SUR	24	0	0	6.0	7.3	9.5
VRID	ALL	SPEED	SUR	58	2	3	5.9	11.6	13.1
WWDY	ALL	SPEED	SUR	24	0	0	4.9	6.6	8.2
4PKM	ALL	SPEED	SUR	32	0	0	3.9	7.2	8.2
4QUL	ALL	SPEED	SUR	37	0	0	4.1	10.0	10.8
9HQA3	ALL	SPEED	SUR	20	0	0	4.7	5.2	7.0
9MBE3	ALL	SPEED	SUR	20	0	0	5.9	8.3	10.2
9VNQ	ALL	SPEED	SUR	20	1	5	5.6	10.6	11.9
WIND DIRECTION									
CG2614	ALL	DIRN.	SUR	66	1	2	33.5	30.3	45.2
C6JD8	ALL	DIRN.	SUR	30	0	0	54.7	-31.9	63.4
ELHR9	ALL	DIRN.	SUR	24	0	0	24.0	30.9	39.1
ELLZ3	ALL	DIRN.	SUR	38	0	0	159.8	3.9	159.9
XYKW	ALL	DIRN.	SUR	21	0	0	66.5	34.2	74.8
46026	ALL	DIRN.	SUR	40	0	0	30.9	-32.4	44.7
46147	ALL	DIRN.	SUR	52	3	6	133.2	-2.9	133.2
46181	ALL	DIRN.	SUR	74	0	0	34.2	-42.2	54.3
51305	ALL	DIRN.	SUR	28	0	0	18.4	47.7	51.2
52302	ALL	DIRN.	SUR	39	0	0	33.9	-31.3	46.2

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND DIRECTION									
52316	ALL	DIRN.	SUR	56	0	0	32.7	-33.4	46.7
62162	ALL	DIRN.	SUR	28	1	4	88.7	34.3	95.1
63113	ALL	DIRN.	SUR	40	0	0	99.5	17.2	101.0
9KWA	ALL	DIRN.	SUR	35	0	0	53.1	30.0	61.0

AVAILABILITY – SHIP/SYNOP – DECEMBER 1995

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 18330

FIGURE 1

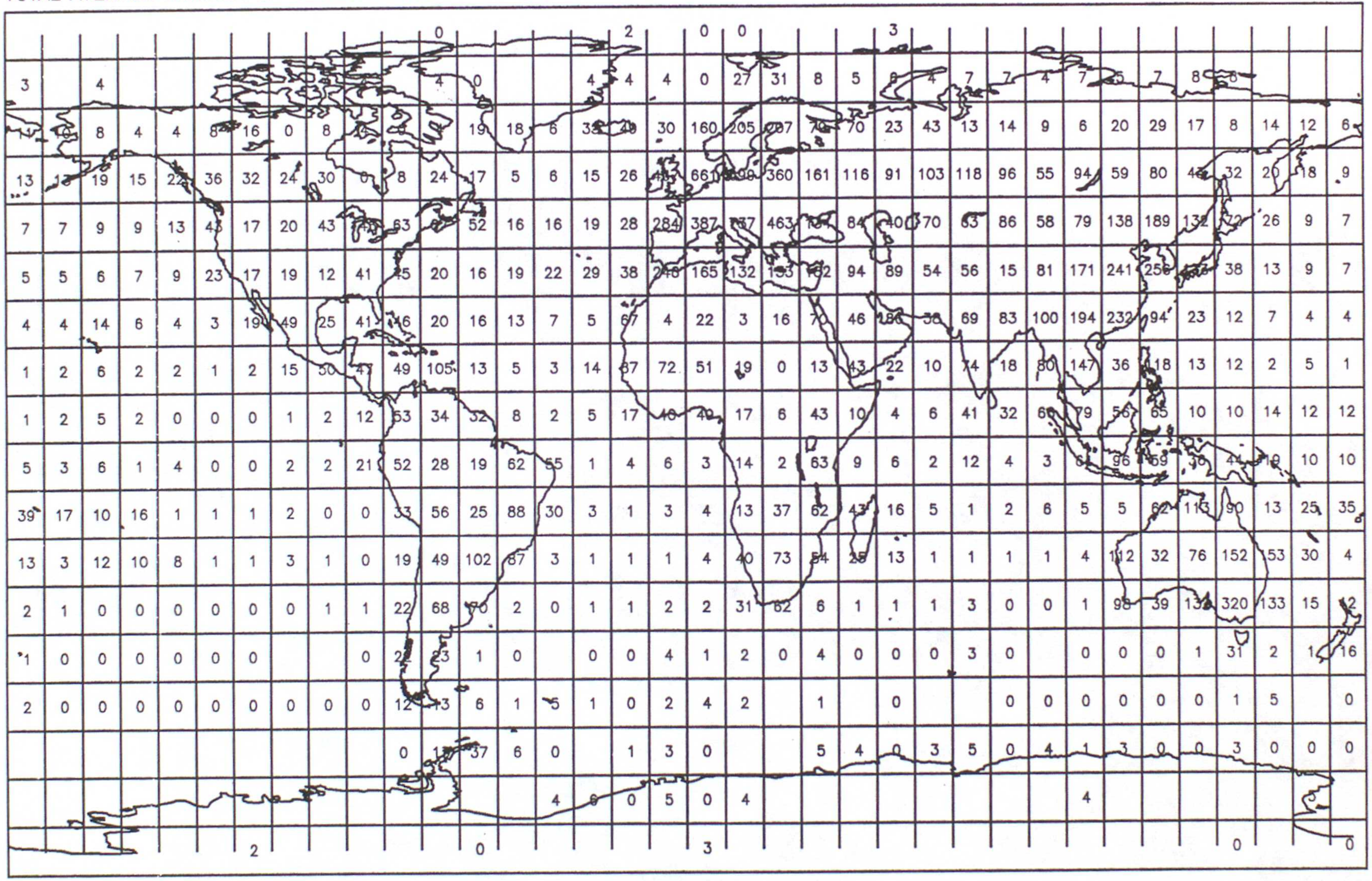


TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH:December, 1995

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoys.
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa). :Wind speed (m s^{-1}). :Wind direction (degrees).
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa :25 m s^{-1}	(pressure) (vector wind)

SELECTION CRITERIA :	NOBS	≥ 20 , and one or more of the following:	
	1. $\lvert bias \rvert$	≥ 4 hPa	(pressure),
		≥ 5 m s^{-1}	(wind speed),
		≥ 30 degrees	(direction).
	2.SD	≥ 6 hPa	(pressure),
		≥ 80 degrees	(direction).
	3.PGE	≥ 25.	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
17603	-25.5	-154.7	ALL	MSLP	SUR	472	97	21	4.7	4.8	6.7
17604	-28.4	1.6	ALL	MSLP	SUR	157	157	100	0.0	0.0	0.0
17607	-43.9	48.6	ALL	MSLP	SUR	618	51	8	7.1	0.3	7.1
21575	47.3	165.2	ALL	MSLP	SUR	74	9	12	9.2	-0.8	9.3
33540	-43.7	24.8	ALL	MSLP	SUR	627	225	36	5.3	5.2	7.4
33944	-51.1	-11.0	ALL	MSLP	SUR	315	54	17	6.3	-4.9	8.0
33949	-48.2	-53.4	ALL	MSLP	SUR	273	32	12	2.0	-11.3	11.5
46928	44.9	-129.3	ALL	MSLP	SUR	86	0	0	2.0	-6.1	6.4
56904	-52.9	164.1	ALL	MSLP	SUR	79	11	14	3.9	5.7	7.0
WIND SPEED											
21525	26.3	150.6	ALL	SPEED	SUR	234	0	0	2.3	-5.4	5.9
44616	57.2	-28.7	ALL	SPEED	SUR	441	2	0	4.2	-11.1	11.9
52539	28.7	143.8	ALL	SPEED	SUR	252	0	0	2.9	-6.6	7.2
52540	33.4	144.1	ALL	SPEED	SUR	82	0	0	2.8	-6.8	7.3
52656	7.3	151.6	ALL	SPEED	SUR	35	0	0	0.9	-5.2	5.3
WIND DIRECTION											
21529	24.3	143.4	ALL	DIRN.	SUR	153	0	0	45.2	63.0	77.6
23925	7.2	85.5	ALL	DIRN.	SUR	36	0	0	76.6	-138.2	158.0
44616	57.2	-28.7	ALL	DIRN.	SUR	429	2	0	106.8	-10.2	107.2
52654	24.8	139.6	ALL	DIRN.	SUR	262	0	0	44.4	34.5	56.2
55579	-22.6	172.2	ALL	DIRN.	SUR	160	0	0	85.6	1.8	85.6

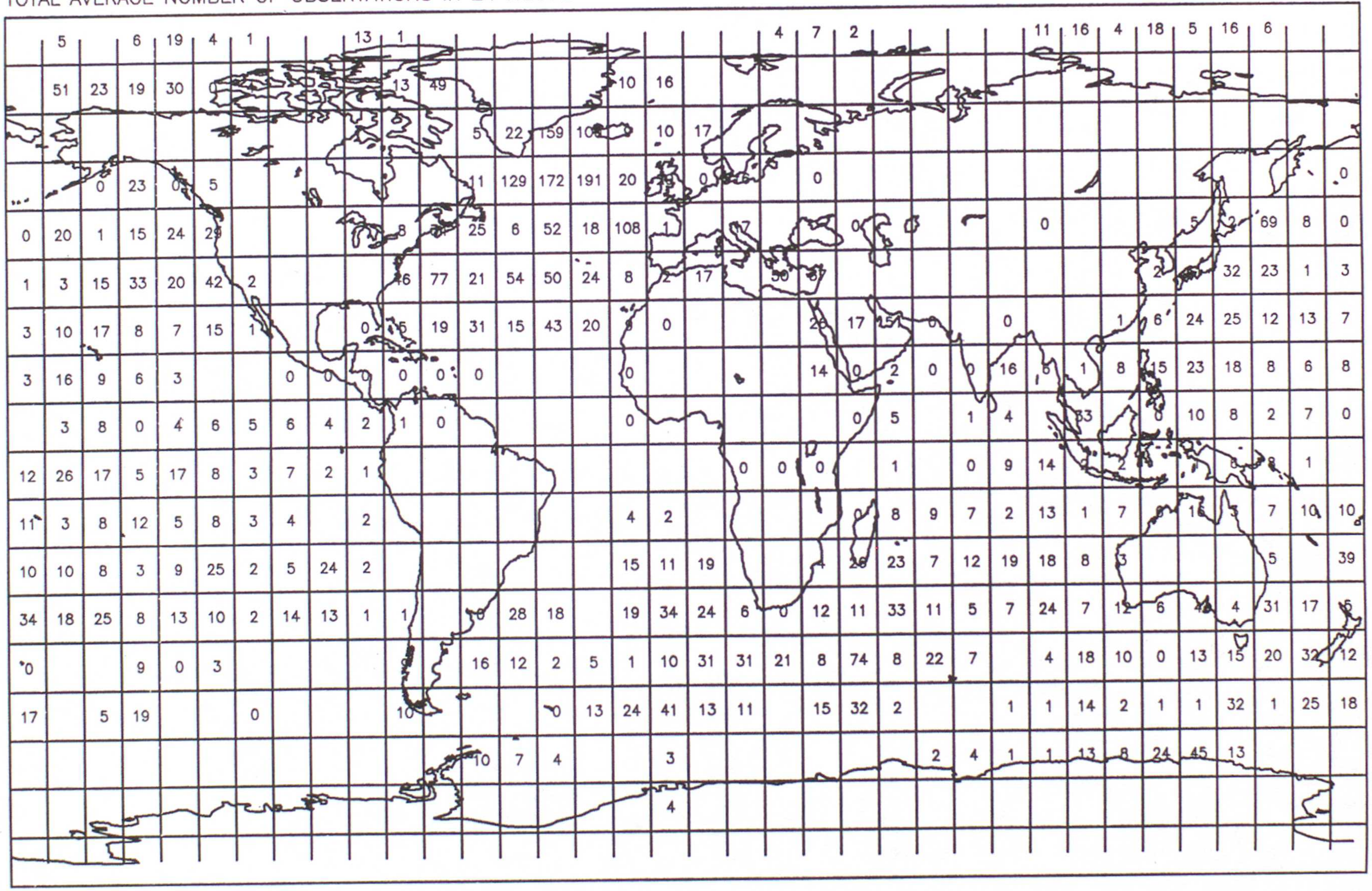
AVAILABILITY – DRIBU – DECEMBER 1995

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 4890

FIGURE 2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51 23 19 30 0 13 49 10 16
5 22 159 10 0 10 17
0 23 0 5 11 129 172 191 20 0 6 0 0
0 20 1 15 24 29 8 25 6 52 18 108 1 17 0 0 5 2 69 8 0
1 3 15 33 20 42 2 16 77 21 54 50 24 8 2 17 50 37 2 32 23 1 3
3 10 17 8 7 15 1 0 5 19 31 15 43 20 0 28 17 15 0 0 1 6 24 25 12 13 7
3 16 9 6 3 0 0 0 0 0 0 0 14 0 2 0 0 16 6 1 8 15 23 18 8 6 8
3 8 0 4 6 5 6 4 2 1 0 0 0 5 1 4 33 0 10 8 2 7 0
12 26 17 5 17 8 3 7 2 1 0 0 0 1 0 9 14 2 2 8 8 1
11 3 8 12 5 8 3 4 2 4 2 0 8 9 7 2 13 1 7 8 16 3 7 10 10
10 10 8 3 9 25 2 5 24 2 15 11 19 4 28 23 7 12 19 18 8 3 5 39
34 18 25 8 13 10 2 14 13 1 1 0 28 18 19 34 24 6 0 12 11 33 11 5 7 24 7 12 6 48 4 31 17 5
0 9 0 3 16 12 2 5 1 10 31 31 21 8 74 8 22 7 4 18 10 0 13 15 20 32 12
17 5 19 0 10 0 13 24 41 13 11 15 32 2 1 1 14 2 1 1 32 1 25 18
10 7 4 3 2 4 1 1 13 8 24 45 13
4

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH:December, 1995

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1. |bias|	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60445	36.2N	5.4E	1081	S8	112	2	2	94	0.9	5.0	5.1
60468	35.6N	6.2E	1052	S8	89	89	100	0	0.0	0.0	0.0
60511	35.3N	1.4E	1127	S8	110	110	100	37	0.0	0.0	0.0
60535	34.7N	3.3E	1144	S8	68	5	7	35	0.7	-6.2	6.2
60571	31.6N	2.2W	773	S8	111	0	0	31	0.9	-4.6	4.7
60670	24.6N	9.5E	1054	S8	110	4	4	96	1.0	8.6	8.7
63333	11.1N	39.7E	1916	MS	79	1	1	92	1.8	6.7	6.9
63451	8.7N	39.0E	1876	MS	57	1	2	16	1.0	-4.1	4.2
63453	8.8N	39.8E	1062	S	53	0	0	100	1.5	12.1	12.2
63478	5.1N	44.6E	320	MS	42	0	0	2	3.1	6.5	7.2
67877	18.2S	31.5E	1632	S8	71	5	7	100	2.4	10.4	10.7
68014	19.6S	18.1E	1411	S8	88	0	0	27	2.2	-4.9	5.4
68396	26.5S	31.3E	641	S8	60	0	0	43	1.2	4.2	4.4
68442	29.1S	26.3E	1354	S8	114	0	0	91	1.2	-5.2	5.3
68752	32.8S	27.4E	524	S8	72	0	0	99	0.9	-7.3	7.4

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
23383	66.9N	93.5E	278	M	71	1	1	32	3.6	4.7	5.9
24382	66.4N	143.2E	196	MS	59	0	0	39	2.1	6.6	6.9
24671	63.9N	135.9E	402	M	82	36	44	57	3.6	11.5	12.1
24688	63.3N	143.2E	741	MS	51	3	6	6	2.0	4.0	4.5
25703	62.9N	152.4E	205	MS	116	0	0	16	2.4	4.4	5.0
30253	57.9N	114.2E	275	MS	109	1	1	35	4.5	4.6	6.4
30385	56.6N	121.5E	426	MS	112	1	1	36	4.3	4.8	6.4
30521	54.8N	105.2E	426	MS	115	0	0	25	2.7	4.3	5.1
30554	54.5N	113.6E	995	MS	60	0	0	100	1.2	10.0	10.1
30627	53.1N	105.5E	762	MS	55	1	2	45	2.0	-4.4	4.8
30673	53.8N	119.7E	625	MS	60	2	3	35	3.1	-4.3	5.3
30764	52.6N	115.2E	646	MS	56	1	2	4	1.4	-4.1	4.3
30967	49.9N	115.8E	623	MS	53	0	0	0	1.7	-4.0	4.3
31474	51.6N	133.3E	384	MS	113	0	0	48	4.3	5.4	6.9
40701	39.3N	44.4E	1470	MS	100	2	2	98	1.2	8.4	8.5
40710	37.9N	47.5E	-9999	M	94	5	5	56	4.1	6.2	7.4
40726	36.8N	45.7E	1385	MS	26	0	0	65	1.0	5.4	5.5
40762	35.3N	59.2E	1333	MS	107	26	24	36	0.8	-13.6	13.6
40763	35.2N	58.5E	1060	MS	48	3	6	19	1.3	-5.0	5.2
40783	32.4N	49.7E	1972	MS	92	0	0	84	1.2	-5.5	5.6
40789	33.8N	55.1E	921	MS	57	3	5	95	1.3	9.7	9.8
40836	30.8N	51.7E	1880	MS	84	0	0	98	1.3	9.6	9.7
40859	29.0N	53.7E	1383	MS	85	1	1	100	1.4	10.6	10.7
41244	24.2N	55.8E	299	M	112	0	0	0	1.4	7.5	7.6
41254	23.1N	57.7E	1755	S8	88	88	100	15	0.0	0.0	0.0
41396	16.0N	48.9E	700	MS	29	0	0	97	1.2	8.0	8.1
41739	27.0N	64.1E	981	S	23	6	26	4	1.4	1.2	1.8
44212	49.8N	92.1E	936	MS	110	2	2	27	3.5	5.1	6.2
44277	46.4N	96.3E	2147	MS	108	0	0	60	2.2	-6.7	7.1
44292	47.9N	107.0E	1338	MS	105	0	0	77	1.2	4.5	4.7
44416	28.6N	81.6E	720	MS	86	0	0	40	1.7	4.8	5.1
44477	27.0N	87.4E	1445	S8	70	70	100	34	0.0	0.0	0.0
47020	41.0N	126.6E	306	M	114	0	0	4	3.0	4.1	5.1
47022	40.8N	128.2E	1206	S	103	4	4	27	2.1	4.7	5.1
51243	45.6N	84.9E	428	MS	123	0	0	4	2.5	4.1	4.8
51288	45.4N	90.5E	1651	S	123	0	0	49	1.9	-4.7	5.1
51334	44.6N	82.9E	321	M	123	15	12	50	3.7	8.8	9.5
51379	44.0N	89.6E	794	M	123	0	0	10	3.0	6.3	7.0
51495	43.5N	91.6E	874	M	122	3	2	21	3.6	6.4	7.3
51573	42.9N	89.2E	37	MS	123	0	0	9	4.1	4.8	6.3
51818	37.6N	78.3E	1376	M	123	0	0	34	2.4	6.8	7.2

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
52378	41.4N	102.4E	960	M	122	0	0	58	2.4	7.3	7.7
52602	38.8N	93.4E	2734	S	122	0	0	2	2.3	-4.6	5.1
53083	44.6N	114.2E	1183	M	122	1	1	66	3.4	6.6	7.4
53352	41.7N	110.4E	1377	M	123	5	4	79	3.9	8.0	8.9
53480	41.0N	113.1E	1416	M	120	2	2	32	3.3	5.6	6.5
53487	40.1N	113.3E	1069	M	122	1	1	18	3.0	5.9	6.6
53502	39.8N	105.8E	1033	M	123	0	0	59	2.6	6.6	7.1
53593	39.8N	114.6E	910	M	123	0	0	37	2.7	5.1	5.8
53705	37.5N	105.7E	1185	M	123	0	0	20	2.4	6.4	6.8
53764	37.5N	111.1E	951	M	123	0	0	7	3.0	4.6	5.5
54308	41.2N	116.6E	661	M	123	0	0	2	2.5	4.3	5.0
54311	41.9N	117.8E	844	M	123	0	0	0	3.0	4.2	5.2
54374	41.7N	126.9E	333	MS	121	0	0	1	2.9	4.0	4.9
54386	41.4N	128.2E	1018	M	119	0	0	13	3.3	6.8	7.6
56287	30.0N	103.0E	629	M	123	0	0	46	1.6	5.0	5.2
56385	29.5N	103.3E	3049	S	120	0	0	21	1.4	-4.2	4.4
56444	28.5N	98.9E	3488	S	123	123	100	36	0.0	0.0	0.0
56462	29.0N	101.5E	2994	S	98	0	0	100	2.1	8.1	8.4
56946	23.6N	99.4E	1104	M	122	0	0	5	1.6	4.0	4.3
57006	34.6N	105.8E	1143	M	123	0	0	7	2.4	5.8	6.3
58445	30.3N	119.4E	1494	S	117	1	1	36	1.4	-4.0	4.2

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	128	M	40	0	0	0	0.8	-6.1	6.2
80434	9.2N	66.0W	125	MS	30	0	0	7	1.3	-5.3	5.5
82704	7.6S	72.7W	170	MS	69	0	0	0	2.0	-4.6	5.0
82825	8.8S	63.9W	95	MS	47	0	0	0	1.9	-4.1	4.5
83214	10.3S	54.9W	285	MS	31	0	0	3	1.9	-5.6	5.9
83235	12.4S	46.4W	660	MS	55	0	0	91	1.3	7.0	7.1
83295	13.4S	39.9W	755	MS	38	0	0	82	1.1	-4.4	4.5
83319	14.7S	52.4W	315	MS	36	0	0	0	1.3	-4.7	4.9
83332	14.1S	46.4W	950	MS	54	15	28	33	1.0	13.5	13.5
83408	14.3S	43.8W	556	MS	62	0	0	100	1.2	12.1	12.2
83423	16.7S	49.3W	729	MS	58	0	0	57	1.1	-5.4	5.5
83488	17.8S	42.9W	1097	MS	50	50	100	24	0.0	0.0	0.0
83531	18.6S	46.5W	896	MS	50	0	0	68	1.2	-6.2	6.3
83587	19.9S	43.9W	850	MS	57	1	2	91	1.3	-7.4	7.5
83689	21.3S	43.8W	1171	MS	43	2	5	93	1.9	4.8	5.2
84455	6.5S	76.4W	282	MS	96	0	0	7	2.2	5.7	6.1
84472	7.1S	78.5W	2622	S	47	0	0	96	0.8	-5.8	5.9
84542	9.4S	77.6W	2760	S	51	0	0	6	2.3	5.0	5.5
84658	12.6S	69.2W	266	MS	89	0	0	9	2.3	4.9	5.4
84686	13.6S	72.0W	3249	S	121	0	0	5	2.1	-5.5	5.9
84782	18.1S	70.3W	469	M	119	0	0	5	1.9	7.0	7.3
85312	19.8S	63.9W	992	S	41	1	2	98	2.2	-9.8	10.0
85406	18.3S	70.3W	58	M	116	0	0	7	1.8	4.4	4.8

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
71882	51.0N	118.2W	443	MS	121	2	2	31	5.4	5.6	7.8
71887	50.7N	120.5W	346	MS	122	3	2	1	4.3	4.1	5.9
71889	49.5N	119.6W	344	MS	122	0	0	34	4.7	4.3	6.4
71891	50.2N	121.6W	229	MS	121	1	1	7	4.9	4.6	6.7
76118	30.4N	109.7W	1040	MS	27	0	0	100	1.0	-10.6	10.6
76160	29.1N	111.0W	211	MS	24	0	0	0	1.1	-4.2	4.3
76539	22.1N	101.0W	1871	MS	81	0	0	60	1.1	-4.5	4.6

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
76632	20.1N	98.7W	2417	M	37	0	0	70	0.9	-5.7	5.8
76634	20.1N	98.4W	2135	MS	82	2	2	70	1.3	-5.7	5.8
76726	18.9N	99.3W	1560	MS	36	1	3	97	1.2	-7.2	7.3
76750	18.5N	88.3W	3	MS	84	0	0	0	1.1	-4.1	4.2
76762	17.5N	99.5W	1360	MS	62	0	0	100	3.4	10.7	11.2
76848	16.3N	92.1W	1530	MS	96	14	15	99	0.8	-13.6	13.6

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
94182	10.1S	143.1E	10	MS	182	48	26	0	1.0	-2.1	2.3

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01245	62.6N	9.7E	630	MS	92	0	0	100	1.2	-5.2	5.3
03305	53.1N	3.9W	215	M	120	7	6	43	6.1	-0.5	6.1
06762	46.2N	8.9E	198	MS	123	0	0	5	2.5	4.1	4.8
08221	40.5N	3.6W	633	MS	121	0	0	99	1.0	6.6	6.7
11024	48.4N	15.4E	860	S8	121	86	71	36	0.6	-14.0	14.0
11180	47.7N	15.8E	1546	S8	121	0	0	61	1.9	-4.9	5.3
11213	46.6N	13.9E	495	MS	118	0	0	48	2.6	4.0	4.8
11231	46.6N	14.3E	476	MS	122	0	0	46	2.3	4.2	4.8
11255	46.7N	13.0E	706	MS	121	0	0	36	2.0	4.8	5.2
11360	47.5N	14.1E	710	MS	60	0	0	72	1.3	4.3	4.5
11735	50.1N	17.2E	1512	S8	123	0	0	65	2.3	-4.7	5.2
12510	50.7N	15.7E	1613	8	123	1	1	68	2.7	-4.4	5.2
16020	46.5N	11.3E	1461	MS	57	57	100	0	0.0	0.0	0.0
16134	44.2N	10.7E	2173	S8	121	0	0	31	1.7	-4.5	4.8
16614	40.4N	21.3E	604	MS	117	0	0	99	1.4	-6.6	6.7

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89208	90.0S	0.0W	2835	S7	70	70	100	0	0.0	0.0	0.0
89262	67.0S	60.6W	17	MS	64	0	0	19	1.9	-4.8	5.2
89264	71.4S	68.9W	780	S8	62	0	0	11	2.5	5.0	5.6
89266	72.2S	60.3W	91	MS	57	57	100	21	0.0	0.0	0.0
89828	74.5S	123.0E	3280	S7	63	1	2	21	2.6	5.9	6.4
89860	74.2S	160.3E	1772	S8	66	0	0	29	1.5	-5.9	6.1
89865	76.2S	168.7E	275	MS	66	61	92	95	0.8	13.8	13.8

TABLE 4

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:December, 1995

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :70.0 - 500.0 hPa

Elements monitored :TEMP in °C ; WIND in $m\ s^{-1}$

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 $m\ s^{-1}$ Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAA	109	3	5	2.1	1.3	110	0	2	0	8.5	0.9
AAL	5131	0	1	1.9	0.0	5135	0	2	0	8.6	1.2
AAN	178	0	3	2.0	-0.4	161	0	2	1	10.4	1.2
AAR	2309	1	2	1.8	0.1	2312	0	3	0	9.0	0.9
ACA	1210	0	1	1.9	-0.2	1235	0	1	0	7.7	0.8
AEA	535	1	67	3.4	1.1	520	0	4	0	9.8	1.0
AEL	762	1	5	2.3	-0.1	767	0	5	0	9.6	0.8
AFL	188	2	100	3.5	1.8	192	1	8	0	10.0	1.2
AFR	1370	1	4	1.9	-0.1	1385	0	4	0	8.2	1.2
AIC	27	0	0	2.1	-0.7	29	0	3	3	14.7	0.8
AIH	65	6	9	1.7	0.0	66	0	8	0	8.8	0.2
ALW	23	0	0	1.4	-0.7	23	0	0	0	5.8	1.2
AMT	406	0	1	1.7	0.4	411	0	2	0	9.5	1.0
AMX	204	1	1	1.6	-0.3	208	0	2	0	9.1	1.0
AMY	181	2	2	2.0	-0.8	181	0	4	0	10.5	0.5
ANA	887	0	1	2.0	-0.3	884	0	3	0	9.4	1.0
ANO	34	0	0	1.2	0.2	34	0	0	0	7.1	2.3
ANZ	2607	1	4	1.9	-0.1	2596	0	4	1	9.0	1.8
AOM	664	1	3	1.9	0.9	668	0	4	0	8.9	1.4
ARP	64	0	0	2.1	1.2	64	0	2	2	6.8	3.0
ATN	124	1	10	2.5	-0.4	124	0	13	0	12.8	2.2
AUA	54	0	4	1.5	-0.5	55	0	5	0	7.4	0.3
AVA	357	2	3	1.8	0.1	361	0	5	0	10.5	1.6
AVN	43	0	2	1.7	0.1	42	0	2	2	7.2	0.0
AZA	427	0	6	2.7	0.9	428	0	4	0	8.5	1.0
BAL	349	0	10	2.0	-0.2	355	0	10	0	8.5	1.2
BAW	1540	1	4	1.9	0.0	1553	0	4	0	8.1	1.2
BBB	53	8	4	1.6	-0.5	54	0	4	0	7.5	-0.3
BBC	22	5	9	1.1	0.8	22	0	14	0	6.5	0.4
BWA	458	4	5	2.1	1.2	463	0	4	0	9.5	1.7
CAL	1846	1	2	2.1	0.0	1847	0	3	0	9.0	1.1
CCA	207	2	4	2.8	-0.1	206	0	62	0	13.2	0.1
CDN	2634	0	1	2.0	0.4	2634	0	2	0	8.6	1.0
CES	156	1	3	2.1	0.5	156	2	58	0	10.7	0.8
CFC	26	0	8	2.5	1.1	26	0	4	0	12.8	1.9
CFG	1118	1	2	1.9	-0.9	1122	0	2	0	8.6	0.8
CKS	145	2	10	3.2	-0.4	147	0	10	0	13.5	1.5
CKT	131	1	8	1.6	0.6	131	0	11	0	8.7	1.2
CLX	141	0	1	1.9	-0.8	143	0	0	0	5.9	0.5
CMI	1109	1	2	2.1	0.0	1116	0	3	0	9.0	1.1
CMM	264	0	1	2.0	0.0	269	0	3	0	9.5	0.5
COA	738	1	2	1.9	0.7	748	0	3	0	8.6	1.1
CPA	45	0	0	2.2	-0.1	52	0	12	0	9.6	2.8
CRL	491	1	2	1.9	0.4	492	0	2	0	9.2	1.2
CTM	93	2	19	2.7	-1.0	99	0	16	0	8.6	2.3
CUB	443	1	100	2.8	1.6	449	1	100	0	13.2	2.0
DAF	23	0	4	2.8	1.3	23	0	0	0	7.1	-0.3
DAL	5061	0	2	2.1	0.7	4841	0	2	0	8.7	1.0
DHL	493	1	100	3.8	-2.2	495	0	4	0	9.0	1.4
DLH	3455	0	8	2.0	0.3	3400	0	10	2	8.0	1.1
DOA	287	0	13	2.0	0.6	290	0	14	0	10.2	0.9
EIA	187	2	10	2.0	-0.5	191	0	10	0	9.2	1.2
ELY	105	1	11	1.7	0.0	108	0	15	0	8.3	1.6
EVA	1937	0	2	2.1	-0.2	1946	0	3	0	9.8	0.7
EWW	111	3	100	2.6	0.6	110	0	100	0	13.3	0.2
FDX	1106	0	2	2.1	0.8	1112	0	3	0	8.3	1.2
FIN	379	0	3	1.8	0.3	372	0	4	0	7.7	0.5
FJI	544	1	3	1.7	0.5	538	0	3	0	8.8	1.2
FOM	20	5	5	2.2	0.4	20	0	5	0	7.9	1.4

	TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS

IDENT.	TEMPERATURE N.REP.	PG	PR	RMS	BIAS	WIND N.REP.	PG	PR	PC	RMS	BIAS
GAF	58	0	5	2.2	1.0	58	0	7	0	10.7	0.4
GFA	34	0	0	1.3	0.0	33	0	0	0	6.0	1.5
GIA	179	1	1	1.5	0.3	180	0	2	0	8.8	1.2
HAL	1538	0	1	1.8	0.3	1541	0	3	0	9.9	0.6
HLA	26	23	31	2.7	0.0	26	0	15	0	13.0	3.1
HLF	119	0	4	1.9	-0.7	119	0	3	0	9.2	0.1
HRH	67	0	3	1.9	0.8	66	0	2	0	6.6	1.1
IBE	2941	1	18	2.1	0.4	2938	0	20	0	10.2	1.0
ICE	432	0	1	1.5	-0.1	427	0	3	2	7.1	1.0
JAA	29	3	3	2.2	1.4	27	0	0	0	6.7	3.8
JAL	7249	0	1	2.0	0.4	7257	0	2	0	8.7	1.1
JAZ	45	0	0	2.1	1.4	46	0	2	0	9.4	0.9
JQA	22	0	9	2.3	0.7	21	0	5	0	8.0	-0.9
KAL	3639	1	2	2.2	0.4	3634	0	2	0	9.3	1.2
KIC	67	1	6	2.1	0.7	66	0	5	0	9.1	1.2
KLM	2488	0	2	1.8	0.1	2480	0	2	0	8.1	1.3
LDA	187	1	5	2.1	-0.8	187	0	5	0	9.5	1.6
LDI	141	1	100	2.3	-1.0	141	0	7	0	10.1	-0.6
LIB	333	1	4	1.8	0.7	333	0	3	0	9.7	1.1
LOT	225	0	4	1.8	-0.6	226	0	4	0	7.8	0.0
LTU	820	0	3	1.8	0.5	787	0	3	0	8.9	1.4
MAS	309	0	2	2.3	-0.2	310	0	6	0	11.8	1.1
MDA	192	1	1	1.8	-0.3	192	0	1	0	9.2	0.8
MOU	32	0	3	1.6	0.9	32	0	3	0	7.7	0.7
MPH	774	0	2	2.1	-0.8	766	0	3	0	8.5	0.8
MRS	71	0	18	4.1	-2.8	71	0	17	1	12.9	4.1
NCA	658	0	2	2.1	0.8	655	0	2	0	8.6	0.8
NGA	43	2	2	1.7	0.7	42	0	100	2	9.8	2.2
NJS	20	0	0	0.9	0.3	20	0	0	0	6.2	2.5
NUG	108	0	2	1.9	-1.5	108	0	74	0	3.5	1.5
NWA	10076	0	2	2.2	0.9	10110	0	2	0	8.5	1.0
OAL	28	0	11	2.9	2.0	28	0	11	0	14.8	2.8
PAC	92	2	5	2.3	0.2	92	0	5	1	8.8	0.6
PAL	984	1	2	1.9	-0.1	995	0	3	1	10.1	0.6
PAO	265	0	3	1.8	0.2	269	0	4	0	8.8	1.0
PNL	44	2	7	2.7	1.7	43	0	2	0	10.6	-0.5
QFA	1144	1	3	1.8	0.2	1151	0	3	1	7.9	1.5
RAF	125	0	1	1.5	0.2	125	1	4	0	11.1	1.6
RIA	182	2	6	2.9	1.8	188	0	100	1	12.8	1.8
RJA	79	1	4	2.0	0.6	79	0	5	0	7.5	1.5
RKA	64	0	3	2.1	-1.0	64	0	3	0	8.3	1.8
RRR	82	1	28	2.4	-0.6	83	0	24	0	9.3	0.5
SAA	217	1	3	2.2	-0.9	216	0	2	0	9.5	0.6
SAB	60	0	3	1.9	-0.8	59	0	8	0	11.3	2.3
SAS	1112	0	1	1.8	-0.2	1105	0	3	1	7.4	0.8
SIA	1267	0	2	2.1	-0.5	1271	0	5	1	10.5	1.2
SJM	29	0	14	2.3	-0.2	31	0	10	0	6.1	-0.2
SOL	50	2	2	1.0	0.2	49	0	0	0	6.7	2.1
SPP	146	0	6	1.7	-0.1	144	0	6	0	8.5	0.1
SVA	102	0	3	1.6	-0.3	106	0	3	0	9.0	1.5
SVV	30	0	7	3.6	2.4	30	0	10	0	11.6	-2.5
SWR	102	1	7	1.9	0.1	102	0	5	0	9.3	1.9
TAP	594	1	5	2.2	-0.3	594	0	5	0	10.1	0.9
TEJ	47	2	17	1.6	-0.3	48	0	21	0	8.2	2.5
THA	250	0	2	2.1	-0.4	250	0	5	0	10.6	0.5
TOW	147	1	1	1.9	0.1	146	0	2	1	8.1	1.1
TWA	1162	1	3	2.3	-0.1	1176	0	3	0	8.2	1.0
UAL	50008	1	3	1.7	0.1	50067	0	2	0	8.0	0.9
ULE	156	0	1	1.4	0.0	156	0	4	0	8.4	1.3

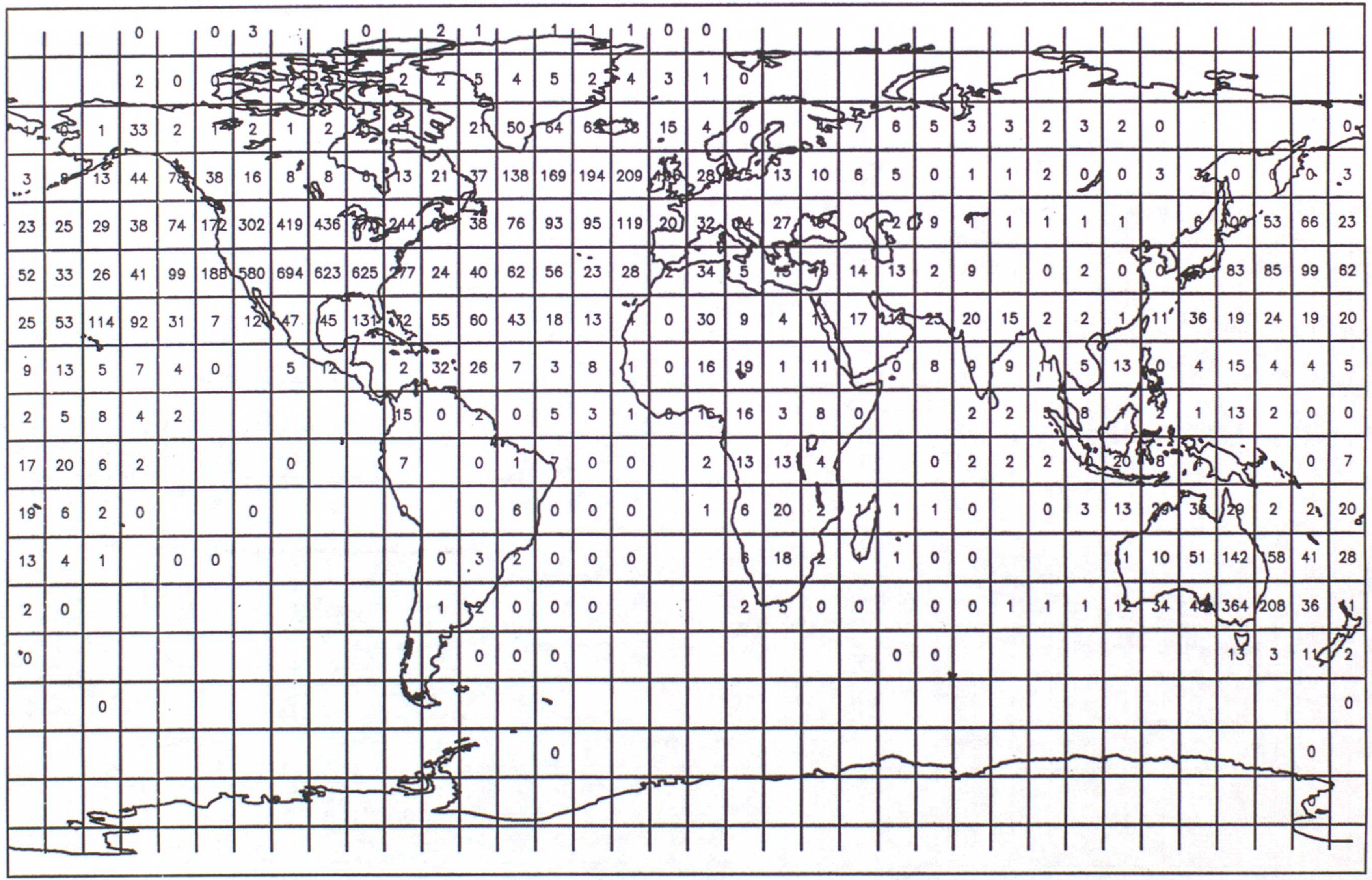
	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
UPS	862	1	10	1.7	0.0	872	0	10	0	7.8	1.3
USA	79	0	0	1.7	-0.4	81	0	0	0	6.6	0.2
VIA	520	1	3	1.8	1.0	523	0	3	0	8.4	1.0
VIR	189	1	3	1.7	-0.4	189	0	6	0	10.5	1.9
VRB	28	4	4	2.5	1.2	28	0	0	0	7.0	1.4
VRG	49	0	2	1.2	0.5	49	0	6	0	10.0	3.3
VSP	119	1	1	2.2	0.8	118	0	3	0	9.4	1.7
WOA	119	3	9	2.1	0.4	123	0	7	0	9.6	1.4
AN	26077	0	1	1.3	0.2	25887	0	1	0	7.2	1.5
BA	22893	0	11	1.5	0.4	22839	0	11	0	7.2	1.4
DL	76112	0	2	1.6	0.0	76111	0	3	0	7.4	1.0
FJ	20	0	10	1.9	-0.3	20	0	10	0	8.8	2.0
KL	14009	1	9	1.4	0.3	14003	0	9	0	7.7	1.5
LH	3619	0	4	1.6	0.2	3583	1	4	0	8.3	1.3
MF	49	0	2	1.6	0.2	49	0	2	0	8.0	1.2
NW	23537	0	1	1.6	0.2	23537	0	1	0	6.8	0.9
QF	9608	0	1	1.3	0.4	9595	0	1	0	7.2	0.9
SA	3150	0	1	1.5	1.0	3144	0	1	0	8.2	2.0
SV	1536	0	3	1.4	0.8	1532	1	4	0	9.8	1.5
M	373	3	96	3.3	0.7	374	0	96	0	14.0	3.6
N	383	1	4	2.8	1.1	403	0	4	0	9.8	0.8

MEAN DAILY COUNT OF AIRCRAFT 70 – 500 HPA

FIGURE 3

DECEMBER 1995

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED



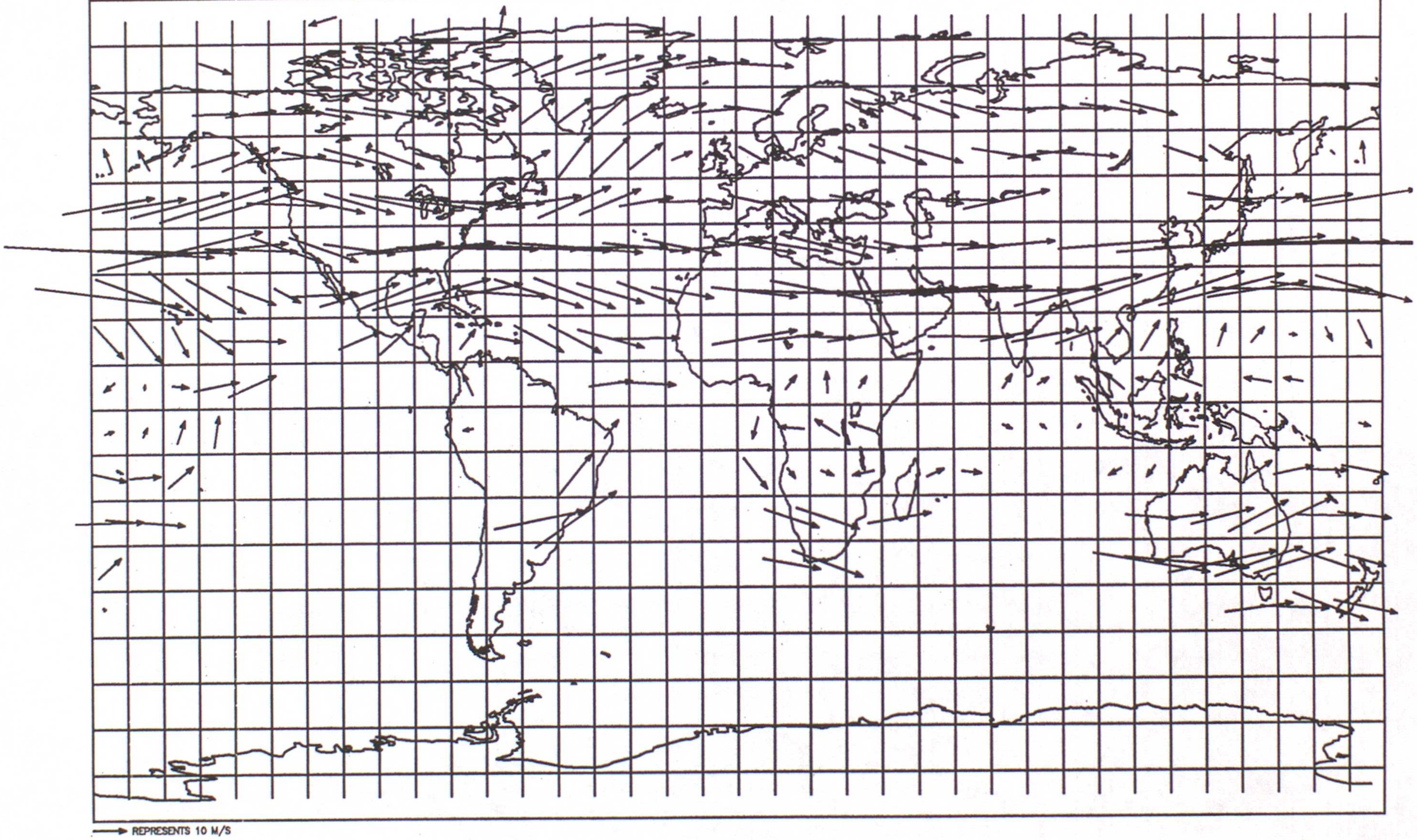
AIRCRAFT MEAN WINDS BETWEEN 70 AND 500 HPA

FIGURE 4

DECEMBER 1995

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



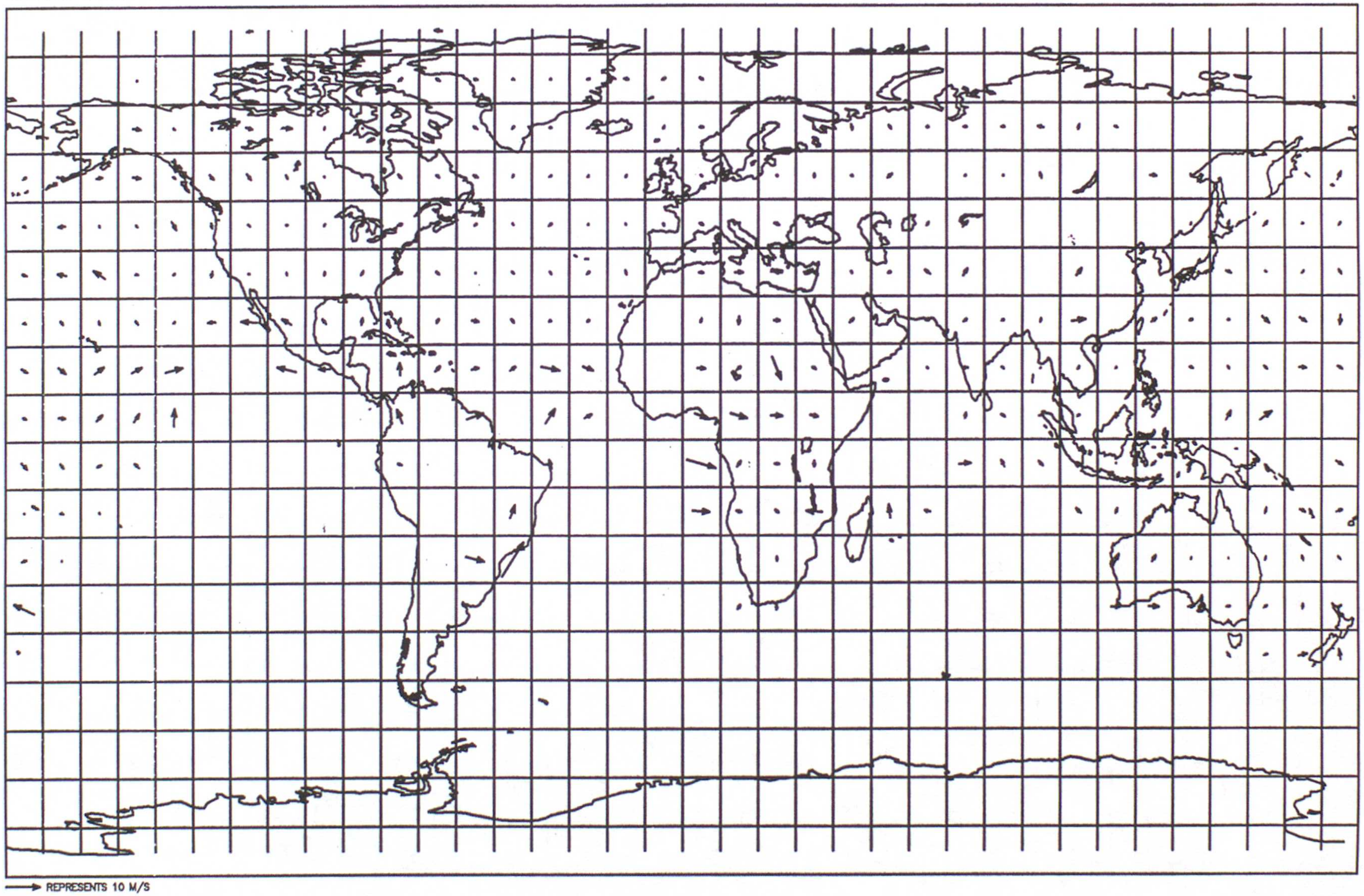
AIRCRAFT MEAN O−B WINDS BETWEEN 70 AND 500 HPA

FIGURE 5

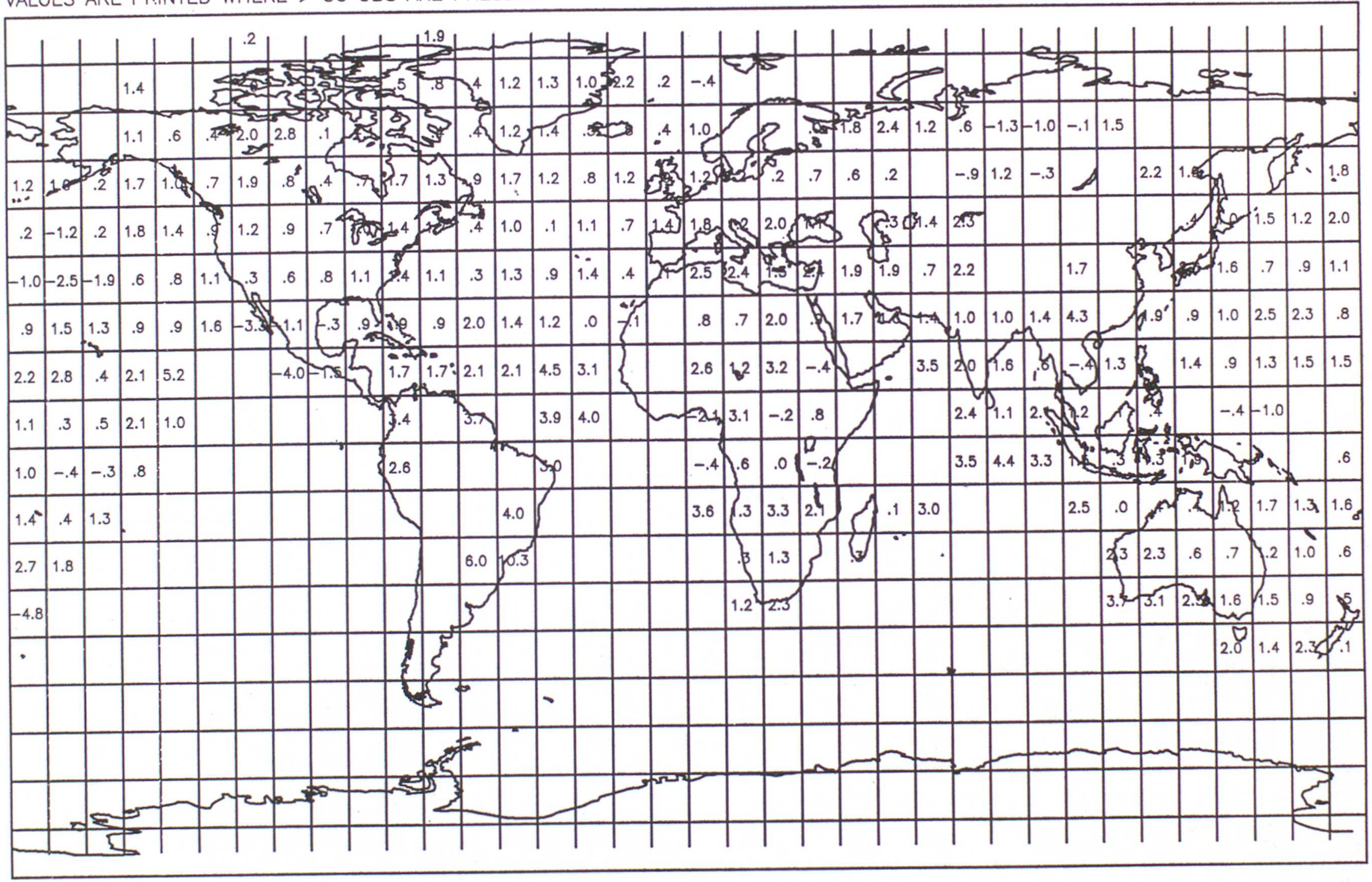
DECEMBER 1995

OBSERVATIONS WITH O−B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



AIRCRAFT : MEAN O–B SPEEDS (M/S) BETWEEN 70 AND 500 HPA FIGURE 6
DECEMBER 1995
OBSERVATIONS WITH O–B VECTOR DIFFERENCE > 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT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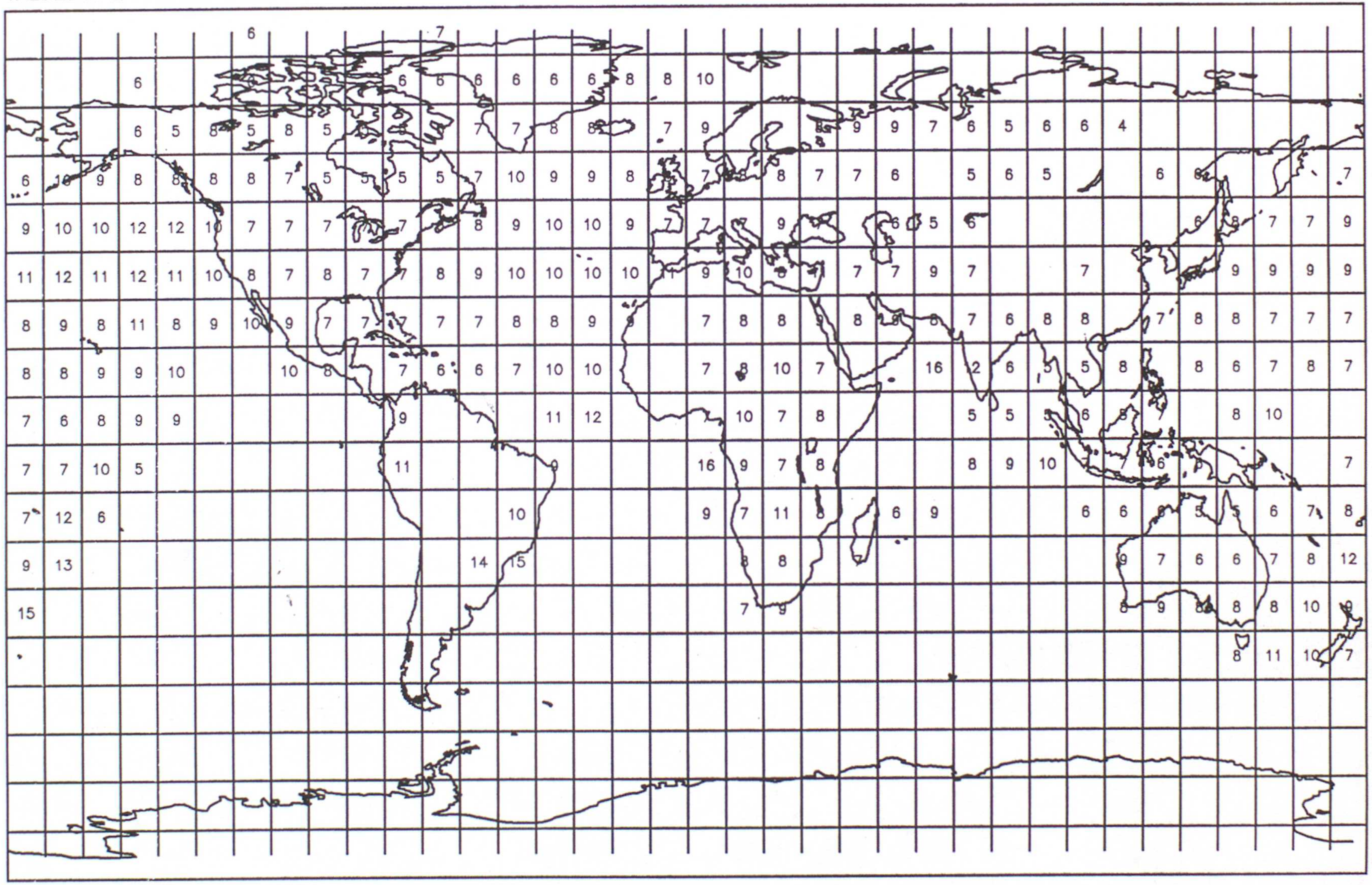
1.4 .5 .8 .4 1.2 1.3 1.0 2.2 .2 –.4
1.1 .6 .4 2.0 2.8 .1 .4 .4 1.2 1.4 .3 .4 1.0 .8 1.8 2.4 1.2 .6 –1.3 –1.0 –.1 1.5
1.2 1.0 .2 1.7 1.0 .7 1.9 .8 .4 .7 1.7 1.3 .9 1.7 1.2 .8 1.2 1.2 .2 .7 .6 .2 –.9 1.2 –.3 2.2 1.8 1.8
.2 –1.2 .2 1.8 1.4 .9 1.2 .9 .7 1.4 .4 1.0 .1 1.1 .7 1.4 1.8 .2 2.0 1.2 .3 1.4 2.3 .0 1.5 1.2 2.0
–1.0 –2.5 –1.9 .6 .8 1.1 .3 .6 .8 1.1 1.4 1.1 .3 1.3 .9 1.4 .4 .1 2.5 2.4 1.5 2.4 1.9 1.9 .7 2.2 1.7 1.6 .7 .9 1.1
.9 1.5 1.3 .9 .9 1.6 –3.3 1.1 –.3 .9 .9 .9 2.0 1.4 1.2 .0 –.1 .8 .7 2.0 .9 1.7 1.6 1.4 1.0 1.0 1.4 4.3 1.9 .9 1.0 2.5 2.3 .8
2.2 2.8 .4 2.1 5.2 –4.0 –1.5 1.7 1.7 2.1 2.1 4.5 3.1 2.6 1.2 3.2 –.4 3.5 2.0 1.6 .6 –.4 1.3 1.4 .9 1.3 1.5 1.5
1.1 .3 .5 2.1 1.0 3.4 3.7 3.9 4.0 –2.4 3.1 –.2 .8 2.4 1.1 2.1 .2 .4 –.4 –1.0
1.0 –.4 –.3 .8 2.6 3.0 –.4 .6 .0 –.2 3.5 4.4 3.3 1.5 .3 1.3 1.9 .6
1.4 .4 1.3 4.0 3.6 .3 3.3 2.1 .1 3.0 2.5 .0 .1 1.2 1.7 1.3 1.6
2.7 1.8 6.0 10.3 .3 1.3 .3 2.3 2.3 .6 .7 .2 1.0 .6
–4.8 1.2 2.3 3.7 3.1 2.5 1.6 1.5 .9 .5
2.0 1.4 2.3 .1

AIRCRAFT : RMS O–B VECTOR (M/S) BETWEEN 70 AND 500 HPA FIGURE 7
DECEMBER 1995
OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT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6 6 6 6 6 6 6 8 8 10
6 5 8 5 8 5 7 7 8 8 7 9 8 9 9 7 6 5 6 6 4
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9 10 10 12 12 10 7 7 7 7 8 9 10 10 9 7 7 7 9 6 5 6 6 8 7 7 9
11 12 11 12 11 10 8 7 8 7 7 8 9 10 10 10 10 9 10 7 7 9 7 7 9 9 9 9
8 9 8 11 8 9 10 9 7 7 7 7 7 8 8 9 9 7 8 8 9 8 9 8 7 6 8 8 7 8 8 7 7 7
8 8 9 9 10 10 8 7 6 6 7 10 10 7 8 10 7 16 2 6 5 5 8 8 6 7 8 7
7 6 8 9 9 9 7 11 12 7 10 7 8 5 5 5 6 8 7 8 10
7 7 10 5 11 9 16 9 7 8 8 9 10 7 6 7
7 12 6 10 9 7 11 8 6 9 6 6 8 5 5 6 7 8
9 13 14 15 8 8 7 9 7 6 6 7 8 12
15 7 9 8 9 8 8 8 10 9
8 11 10 7

TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:December, 1995

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 30.0 hPa

Element monitored :GEOPOTENTIAL HEIGHT IN metres

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown duringperiod.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.1

SELECTION CRITERIA : ≥3 levels with ≥10 observations and ≥ 100 m weighted RMS.

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
42027	00	Z	250	34/ 75	21	0	82.2	-1.6	82.2	4
42314	00	Z	150	27/ 95	15	1	103.1	-80.9	131.0	6
42314	12	Z	200	27/ 95	20	0	85.1	-100.5	131.7	7
42339	00	Z	100	26/ 73	19	0	88.6	-101.9	135.1	5
42339	12	Z	50	26/ 73	17	0	109.6	-143.6	180.6	7
42361	00	Z	150	26/ 78	12	0	101.1	-89.0	134.7	6
42361	12	Z	200	26/ 78	10	0	64.7	-60.4	88.5	5
42369	00	Z	200	27/ 81	21	0	87.8	-43.6	98.0	6
42369	12	Z	50	27/ 81	9	2	202.7	-26.9	204.5	8
42379	00	Z	50	27/ 83	16	0	181.0	19.9	182.1	9
42379	12	Z	200	27/ 83	24	0	71.1	-47.0	85.2	6
42397	12	Z	500	27/ 88	21	1	34.4	-52.9	63.1	4
42647	00	Z	150	23/ 73	21	0	54.5	-98.7	112.7	6
42667	12	Z	250	23/ 77	19	0	63.9	-44.8	78.0	4
42701	00	Z	150	23/ 85	15	3	57.4	-182.3	191.1	10
42701	12	Z	150	23/ 85	8	3	63.2	-139.0	152.7	6
42724	00	Z	250	24/ 91	18	0	60.0	-45.9	75.6	5
42724	12	Z	200	24/ 91	13	0	58.8	-82.1	101.0	5
42875	00	Z	200	21/ 82	24	0	92.0	-80.7	122.4	8
42875	12	Z	250	21/ 82	21	1	70.1	-62.9	94.2	6
42971	00	Z	400	20/ 86	27	0	36.7	-49.9	61.9	5
42971	12	Z	250	20/ 86	18	1	76.5	-85.2	114.5	6
43014	00	Z	150	20/ 75	28	1	86.6	-98.8	131.3	6
43014	12	Z	150	20/ 75	22	0	96.6	-68.2	118.2	6
43128	00	Z	150	17/ 78	22	0	62.0	-96.8	115.0	6
43128	12	Z	70	17/ 78	22	0	121.4	84.4	147.9	4
43185	00	Z	250	16/ 81	26	0	82.3	-56.2	99.7	7
43185	12	Z	200	16/ 81	27	0	71.9	-55.0	90.5	5
43192	00	Z	200	15/ 74	21	0	68.9	-111.4	131.0	9
43192	12	Z	400	15/ 74	14	0	69.5	-1.9	69.5	4
43279	00	Z	50	13/ 80	14	0	137.8	-5.8	137.9	6
43285	00	Z	250	13/ 75	21	0	89.1	-32.1	94.7	5
43285	12	Z	70	13/ 75	11	0	130.0	94.6	160.8	5
43353	00	Z	150	10/ 76	19	2	60.9	-121.8	136.2	6
43371	00	Z	50	8/ 77	26	0	116.9	-217.2	246.6	9
43371	12	Z	70	8/ 77	23	0	141.1	-83.3	163.8	10
44373	12	Z	200	44/ 104	10	1	31.7	119.8	123.9	4
54497	00	Z	30	40/ 124	22	0	72.9	158.0	174.0	5
56739	12	Z	100	25/ 98	29	0	70.7	86.4	111.7	5
57957	12	Z	70	25/ 110	15	0	51.7	145.6	154.5	6
60360	12	Z	400	37/ 8	14	9	56.7	-115.3	128.5	6
62306	12	Z	50	31/ 27	10	4	96.5	303.9	318.9	9
62378	12	Z	30	30/ 31	9	2	185.4	273.3	330.3	6
89050	00	Z	250	-62/ -59	24	7	62.0	130.6	144.5	10
96163	00	Z	250	-1/ 100	14	2	81.1	-31.9	87.1	8
97724	00	Z	70	-4/ 128	13	1	124.4	5.8	124.6	4

AVAILABILITY – TEMP – 500 HPA GEOPOTENTIAL – DECEMBER 1995

FIGURE 8

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1411

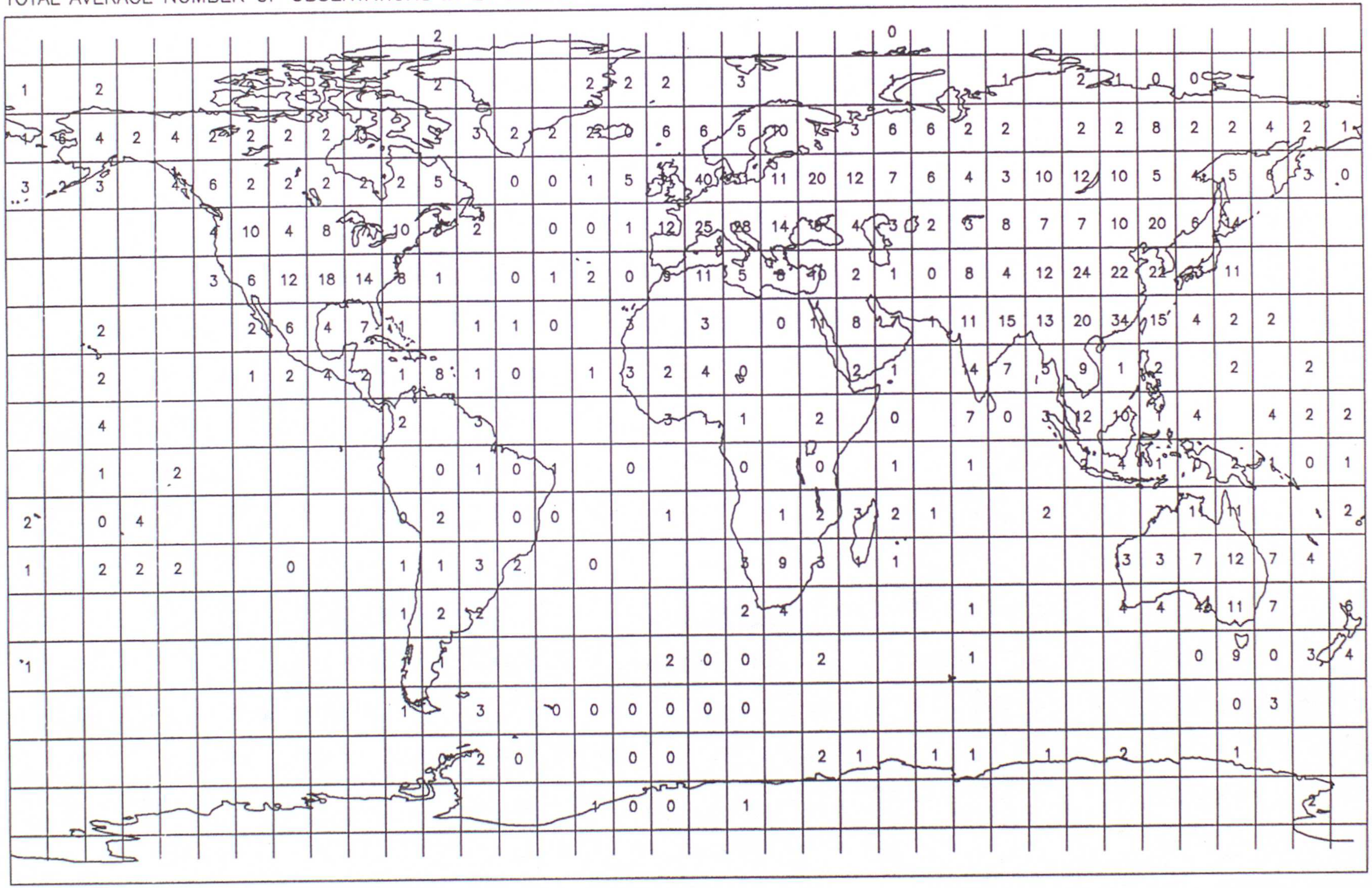

2 0
1 2 2 2 2 2 3 1 2 1 0 0
1 6 4 2 4 2 2 2 2 2 3 2 2 23 6 6 5 10 3 6 6 2 2 2 2 8 2 2 4 2 1
3 2 3 4 6 2 2 2 2 2 5 0 0 1 5 3 40 11 20 12 7 6 4 3 10 12 10 5 4 5 6 3 0
4 10 4 8 10 2 0 0 1 12 25 38 14 8 4 3 2 3 8 7 7 10 20 6 14
3 6 12 18 14 8 1 0 1 2 0 9 11 5 8 10 2 1 0 8 4 12 24 22 22 11
2 2 6 4 7 1 1 1 0 3 3 0 11 8 7 1 11 15 13 20 34 15 4 2 2
2 1 2 4 2 1 8 1 0 1 3 2 4 0 2 1 14 7 5 9 1 2 2 2
4 2 3 3 1 2 0 7 0 3 12 10 1 4 4 2 2
1 2 0 1 0 1 0 0 0 1 1 2 4 1 2 1 0 1
2 0 4 0 2 0 0 1 1 2 3 2 1 2 1 11 1 2
1 2 2 2 0 1 1 3 2 0 3 9 3 1 1 3 3 7 12 7 4
1 2 2 2 4 1 4 4 42 11 7 6
1 1 2 0 0 2 1 0 9 0 3 4
1 3 0 0 0 0 0 0 0 3
2 0 0 0 2 1 1 1 1 2 1
1 0 0 1 2

TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:December, 1995

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 100.0 hPa
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored		
	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.2

SELECTION CRITERIA : $\geq$ 10 observations and $\geq$ 15 m s^{-1} RMS vector wind.

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
WTEA	00	V	300	-45/ 143	12	0	8	2.4	-4.3	15.4	1
41316	00	V	200	17/ 54	24	0	33	-27.2	3.3	27.3	5
41780	00	V	150	25/ 67	18	0	5	-19.5	-3.5	20.0	3
42101	00	V	300	30/ 76	10	0	10	6.1	1.2	16.5	1
42339	00	V	150	26/ 73	18	0	5	-16.9	-9.9	20.8	4
42339	12	V	150	26/ 73	19	0	36	-18.1	-5.7	24.0	4
42369	12	V	200	27/ 81	19	0	0	-10.0	-5.5	15.3	1
42379	00	V	250	27/ 83	18	0	11	-12.7	-1.5	16.2	1
83971	12	V	200	-30/ -51	22	0	9	3.5	7.6	20.6	3
97180	12	V	100	-5/ 120	21	0	4	-12.6	0.0	15.8	1

AVAILABILITY – TEMP/PILOT – 300 HPA WIND – DECEMBER 1995

FIGURE 9

ALL HOURS
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1238

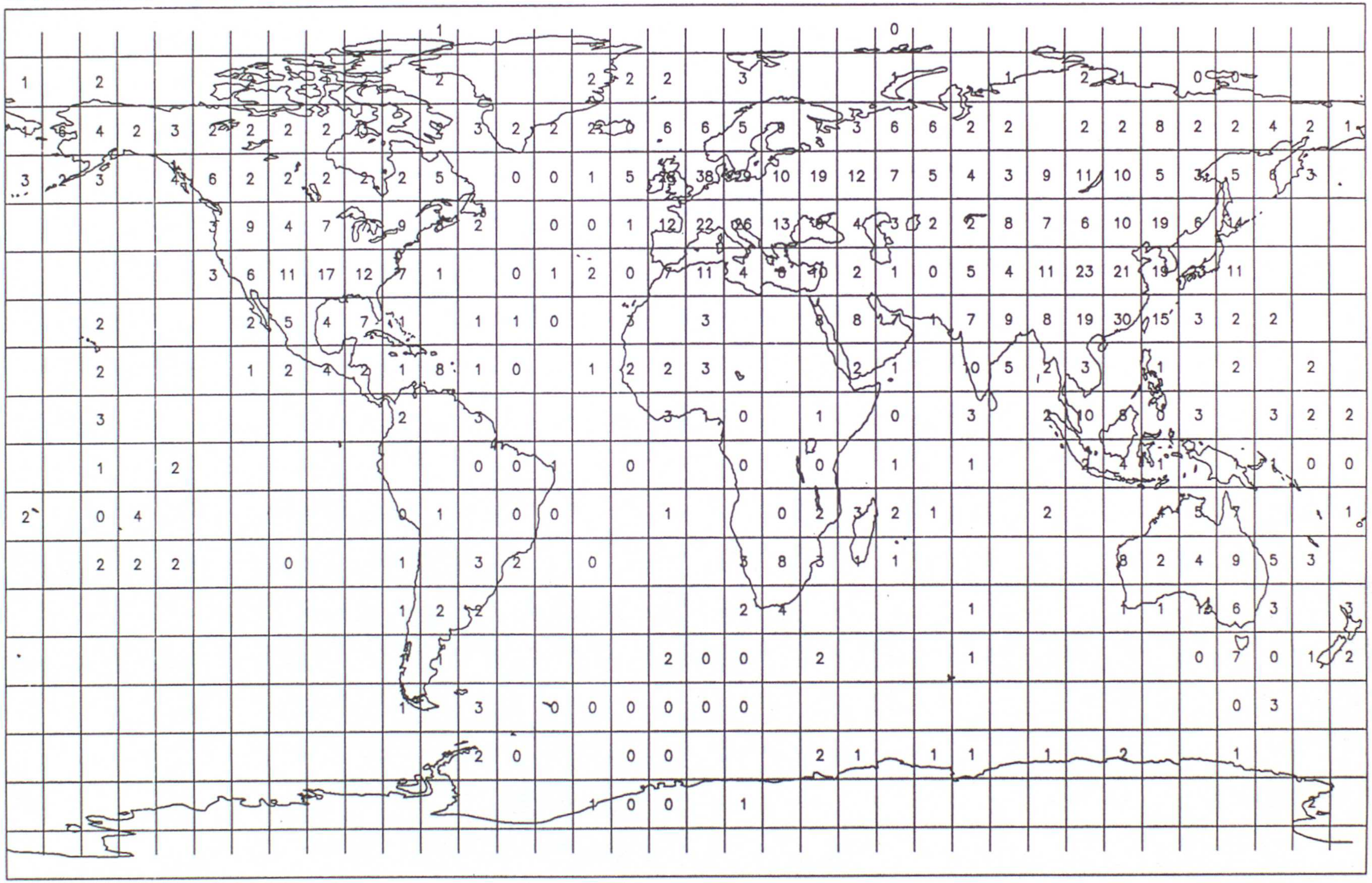


TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH:December, 1995

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 500.0 - 150.0 hPa
Element monitored		:WIND DIRECTION in degrees
Parameters monitored		
	:NUM OBS	:Average number of observations at all levels.
	:BIAS	:Mean difference of observations from background values from all levels.
	:MAX SPREAD	:(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels
	:SD	:SD of difference of observations from background values at all levels.

SELECTION CRITERIA
:NUM OBS ≥ 5, and
ABSOLUTE BIAS $\geq 10°$, with
SD $< 30°$, and
MAX SPREAD $< 10°$

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
16144	12	DD	45/ 12	20	12.2	5.5	21.6
17062	00	DD	41/ 29	23	-18.8	3.2	21.6
17062	12	DD	41/ 29	22	-21.0	3.8	21.3
17280	00	DD	38/ 40	27	-10.4	9.9	13.1
25399	00	DD	66/-170	17	11.8	4.7	13.2
31168	12	DD	56/ 138	8	12.2	1.9	10.3
40265	00	DD	32/ 36	27	-26.4	7.1	13.7
42339	00	DD	26/ 73	21	15.1	2.7	9.1
42339	12	DD	26/ 73	22	12.8	3.6	10.1
48327	00	DD	19/ 99	19	10.8	6.3	19.3
53614	00	DD	38/ 106	29	-11.5	4.3	9.0
53614	12	DD	38/ 106	30	-10.3	4.1	8.7
55591	00	DD	30/ 91	29	-14.6	8.8	13.1
55591	12	DD	30/ 91	27	-14.9	9.0	13.7
61291	12	DD	13/ -8	17	10.5	4.3	22.1
67083	00	DD	-19/ 47	20	18.7	5.5	23.5
78397	12	DD	18/ -77	15	-10.4	5.0	16.1
78583	12	DD	18/ -88	9	-12.8	9.7	18.7
78954	12	DD	13/ -59	16	-11.1	9.8	20.6

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: BRACKNELL

MONTH:December, 1995

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from GOES, METEOSAT, GMS, INSAT.

Standard of comparison :Background field from Bracknell global model.

Selection Criteria :number of observations > 10.

Data Extracted :Layer 701 - 1000 hPa
401 - 700 hPa
101 - 400 hPa

:Mean wind

:Mean observation minus background vector wind differences

:Mean observation minus background speed differences

:RMS of observation minus background vector differences

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
DECEMBER 1995

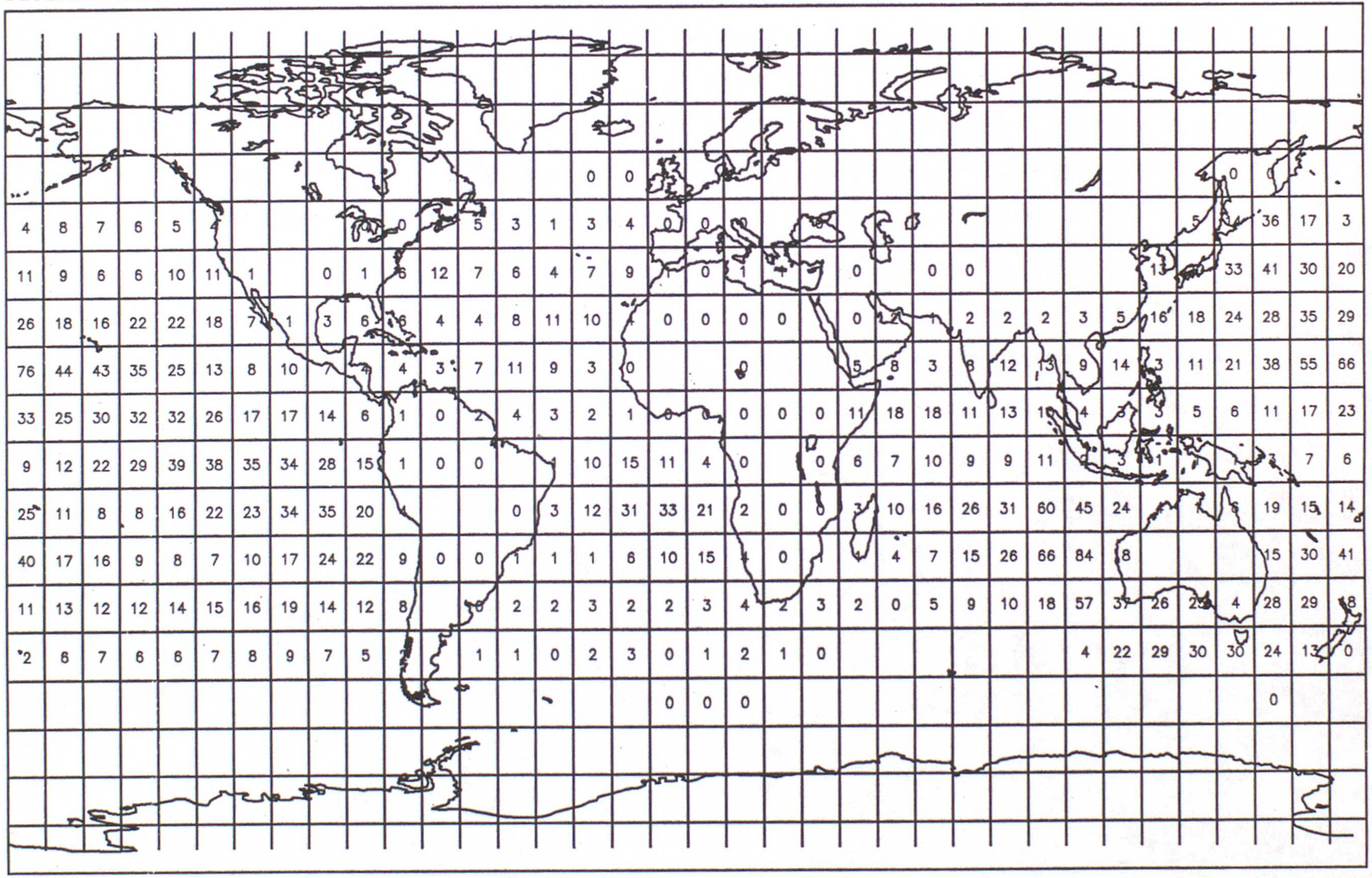
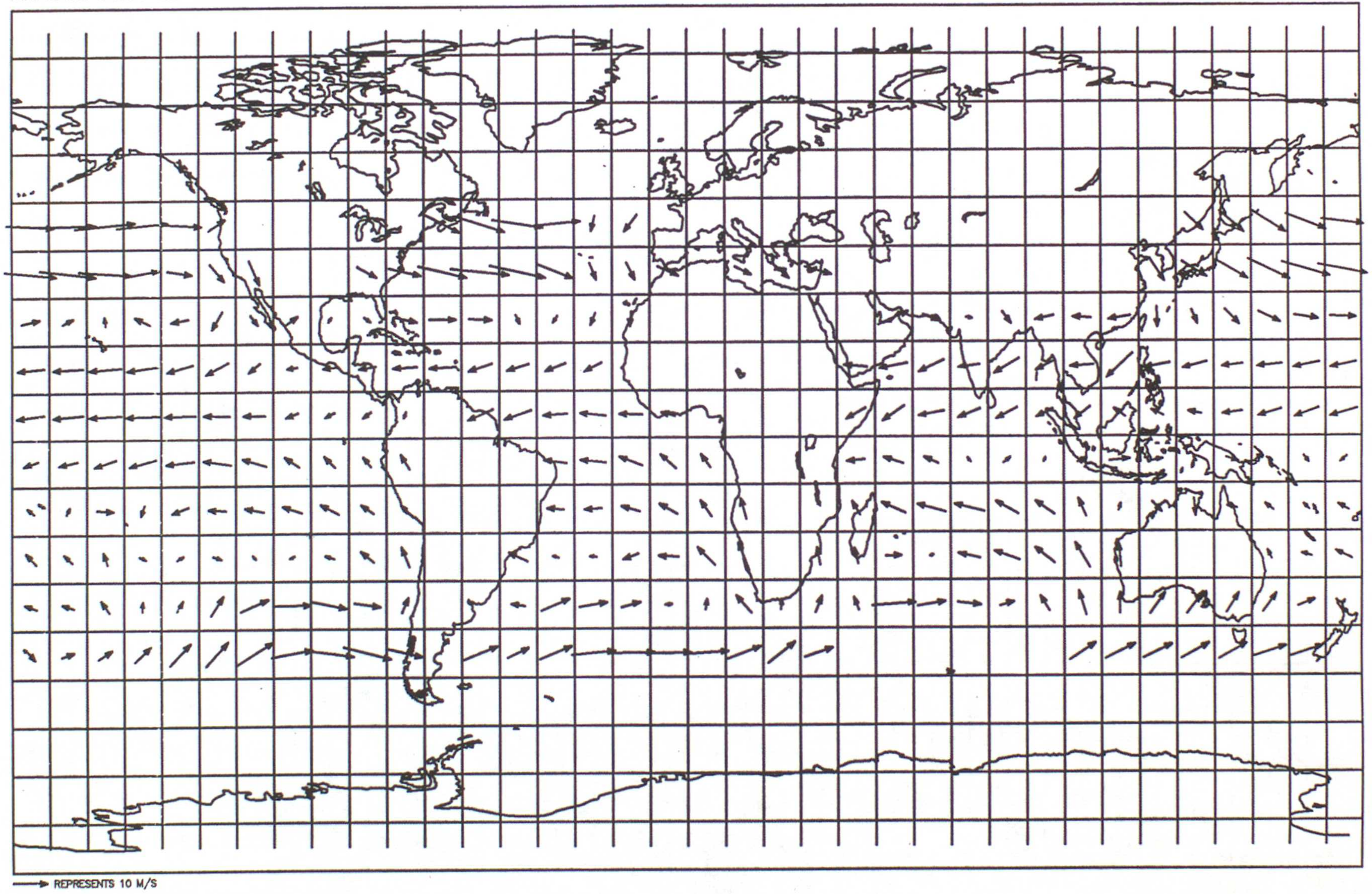

0 0 0 0
4 8 7 6 5 4 0 5 3 1 3 4 0 0 0 5 4 36 17 3
11 9 6 6 10 11 1 0 1 6 12 7 6 4 7 9 1 0 1 0 0 0 13 33 41 30 20
26 18 16 22 22 18 7 1 3 6 6 4 4 8 11 10 4 0 0 0 0 0 2 2 2 2 3 5 16 18 24 28 35 29
76 44 43 35 25 13 8 10 7 4 4 3 7 11 9 3 0 0 5 8 3 8 12 13 9 14 3 11 21 38 55 66
33 25 30 32 32 26 17 17 14 6 1 0 2 4 3 2 1 0 0 0 0 0 11 18 18 11 13 10 4 3 3 5 6 11 17 23
9 12 22 29 39 38 35 34 28 15 1 0 0 1 10 15 11 4 0 0 6 7 10 9 9 11 3 1 3 7 6
25 11 8 8 16 22 23 34 35 20 4 0 3 12 31 33 21 2 0 0 3 10 16 26 31 60 45 24 1 6 19 15 14
40 17 16 9 8 7 10 17 24 22 9 0 0 1 1 1 6 10 15 4 0 1 1 4 7 15 26 66 84 8 15 30 41
11 13 12 12 14 15 16 19 14 12 8 0 2 2 3 2 2 3 4 2 3 2 0 5 9 10 18 57 37 26 23 4 28 29 18
2 6 7 6 6 7 8 9 7 5 1 1 0 2 3 0 1 2 1 0 4 22 29 30 30 24 13 0
0 0 0 0

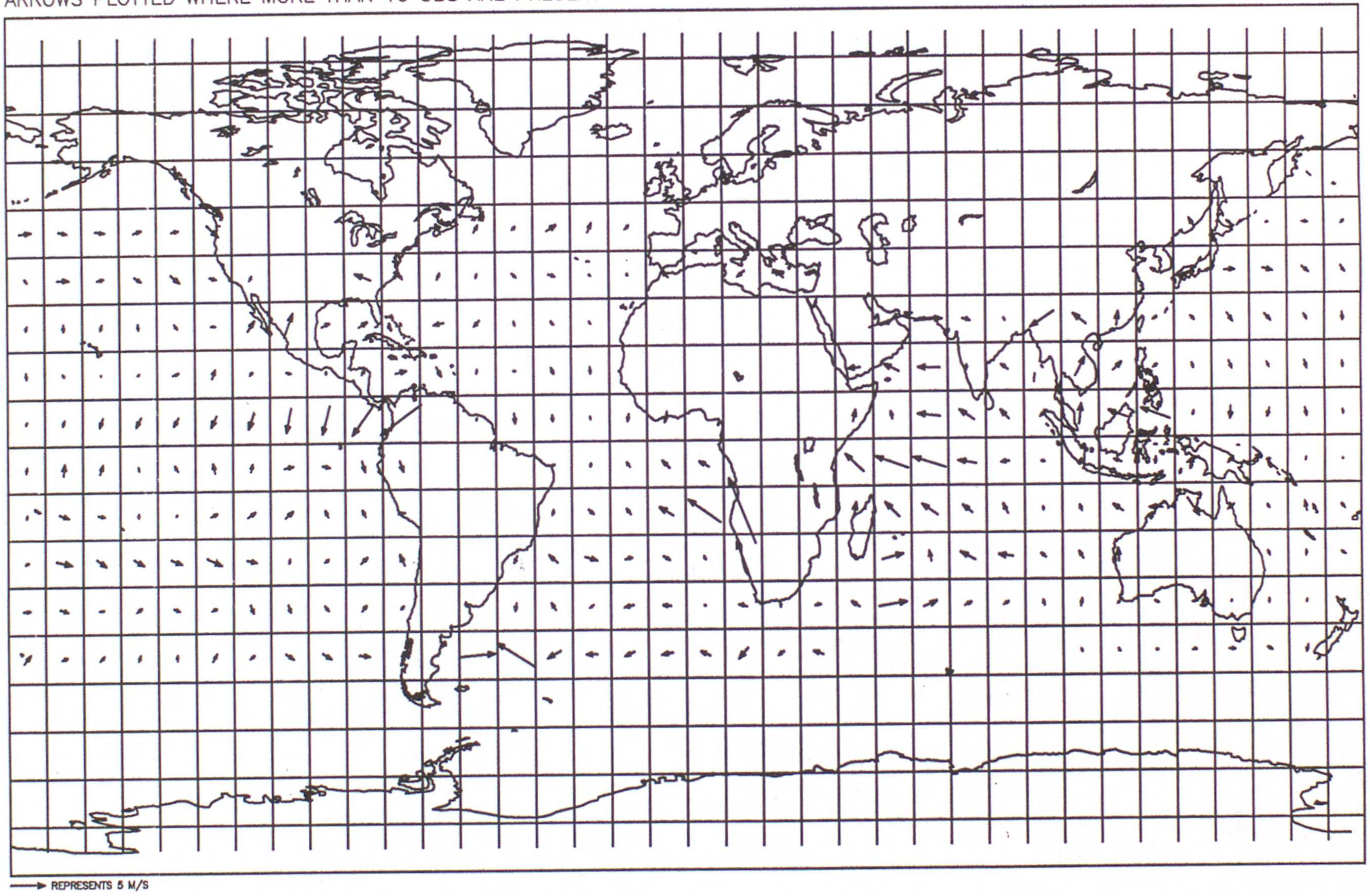
FIGURE 11

SATOB VECTOR MEAN WINDS BETWEEN 701–1000 HPA
DECEMBER 1995
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

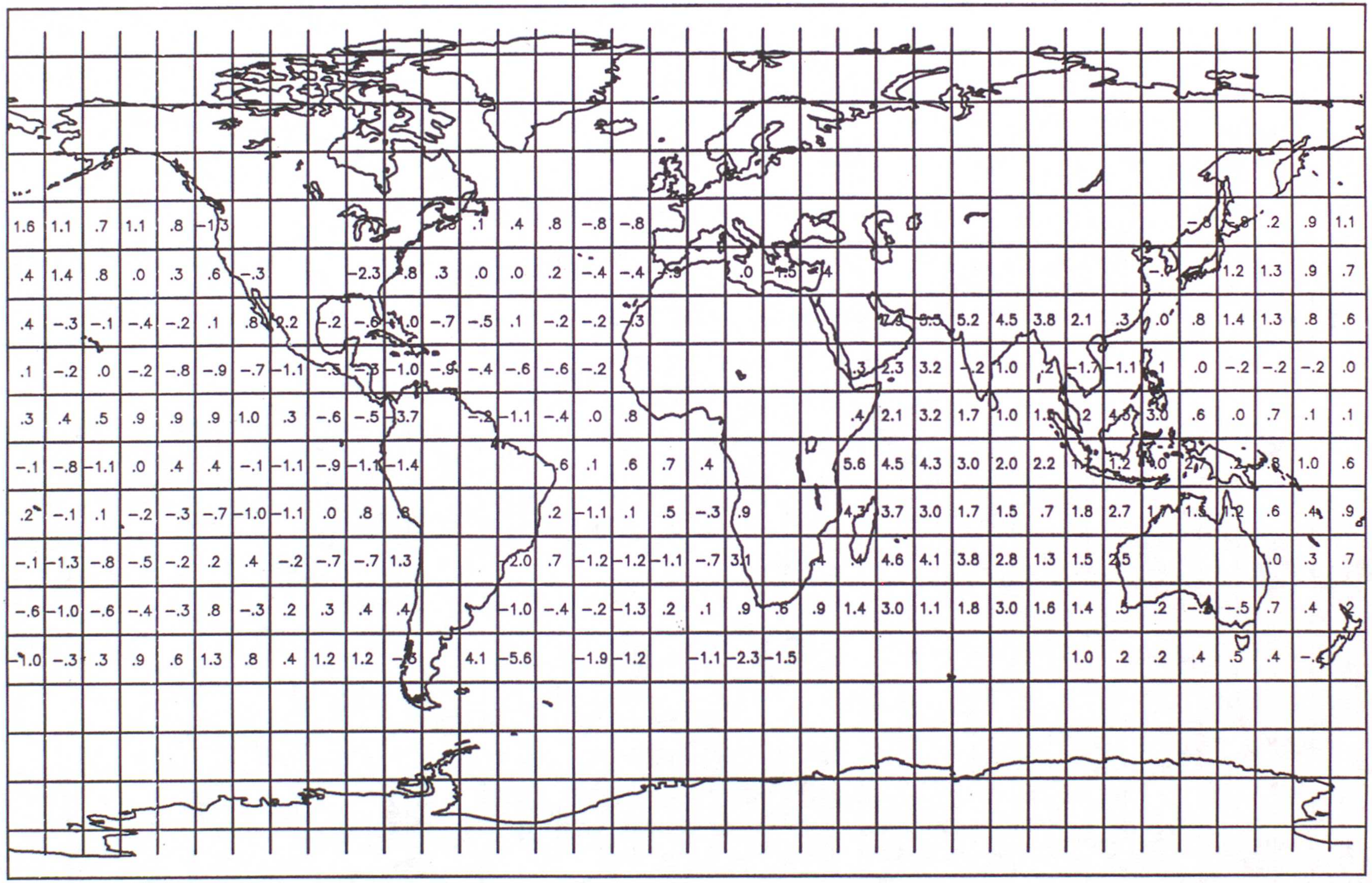

REPRESENTS 10 M/S

SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 701–1000 HPA
DECEMBER 1995
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

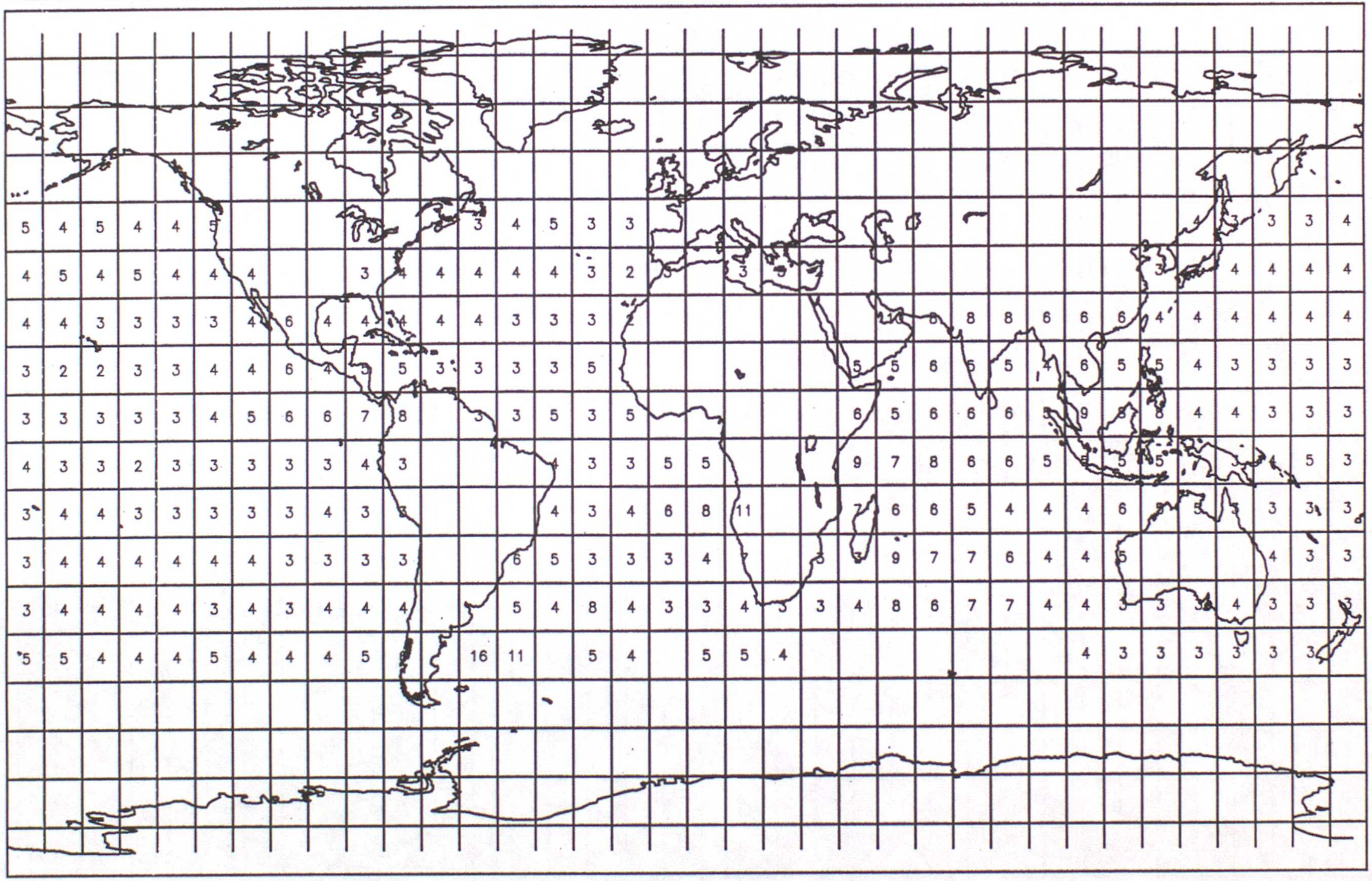
FIGURE 12



SATOBS : MEAN O−B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 13
DECEMBER 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


1.6 1.1 .7 1.1 .8 −1.3 .1 .4 .8 −.8 −.8 −.8 −.8 .2 .9 1.1
.4 1.4 .8 .0 .3 .6 −.3 −2.3 .8 .3 .0 .0 .2 −.4 −.4 −.9 .0 −1.5 .4 −.7 1.2 1.3 .9 .7
.4 −.3 −.1 −.4 −.2 .1 .8 2.2 −.2 −.6 −1.0 −.7 −.5 .1 −.2 −.2 −.3 7.3 5.5 5.2 4.5 3.8 2.1 .3 .0 .8 1.4 1.3 .8 .6
.1 −.2 .0 −.2 −.8 −.9 −.7 −1.1 −.5 −.3 −1.0 −.9 −.4 −.6 −.6 −.2 .3 2.3 3.2 −.2 1.0 .2 −1.7 −1.1 .1 .0 −.2 −.2 −.2 .0
.3 .4 .5 .9 .9 .9 1.0 .3 −.6 −.5 3.7 −.2 −1.1 −.4 .0 .8 .4 2.1 3.2 1.7 1.0 1.5 .2 4.5 3.0 .6 .0 .7 .1 .1
−.1 −.8 −1.1 .0 .4 .4 −.1 −1.1 −.9 −1.1 −1.4 .6 .1 .6 .7 .4 5.6 4.5 4.3 3.0 2.0 2.2 1.1 1.2 1.0 2.7 .2 .8 1.0 .6
.2 −.1 .1 −.2 −.3 −.7 −1.0 −1.1 .0 .8 .8 .2 −1.1 .1 .5 −.3 .9 4.3 3.7 3.0 1.7 1.5 .7 1.8 2.7 1.7 1.5 1.2 .6 .4 .9
−.1 −1.3 −.8 −.5 −.2 .2 .4 −.2 −.7 −.7 1.3 2.0 .7 −1.2 −1.2 −1.1 −.7 3.1 .4 .4 4.6 4.1 3.8 2.8 1.3 1.5 2.5 .0 .3 .7
−.6 −1.0 −.6 −.4 −.3 .8 −.3 .2 .3 .4 .4 −1.0 −.4 −.2 −1.3 .2 .1 .9 .6 .9 1.4 3.0 1.1 1.8 3.0 1.6 1.4 .5 .2 −.3 −.5 .7 .4 .2
−1.0 −.3 .3 .9 .6 1.3 .8 .4 1.2 1.2 −.6 4.1 −5.6 −1.9 −1.2 −1.1 −2.3 −1.5 1.0 .2 .2 .4 .5 .4 −.4

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14
DECEMBER 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


5 4 5 4 4 5 3 4 5 3 3 4 3 3 3 4
4 5 4 5 4 4 4 3 4 4 4 4 4 3 2 3 3 3 5 3 4 4 4 4
4 4 3 3 3 3 4 6 4 4 4 4 4 3 3 3 2 10 8 8 8 6 6 6 4 4 4 4 4 4
3 2 2 3 3 4 4 6 4 5 5 3 3 3 3 5 5 5 6 5 5 4 6 5 5 4 3 3 3 3
3 3 3 3 3 4 5 6 6 7 8 3 3 5 3 5 6 5 6 6 6 5 9 8 8 4 4 3 3 3
4 3 3 2 3 3 3 3 3 4 3 4 3 3 5 5 9 7 8 6 6 5 5 5 5 5 3
3 4 4 3 3 3 3 3 4 3 3 4 3 4 6 8 11 7 6 6 5 4 4 4 6 5 5 3 3 3 3
3 4 4 4 4 4 4 3 3 3 3 6 5 3 3 3 4 7 3 3 9 7 7 6 4 4 5 4 3 3
3 4 4 4 3 4 3 4 4 4 5 4 8 4 3 3 4 3 3 4 8 6 7 7 4 4 3 3 3 4 3 3 3
5 5 4 4 4 5 4 4 4 5 6 16 11 5 4 5 5 4 4 3 3 3 3 3 3

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
DECEMBER 1995

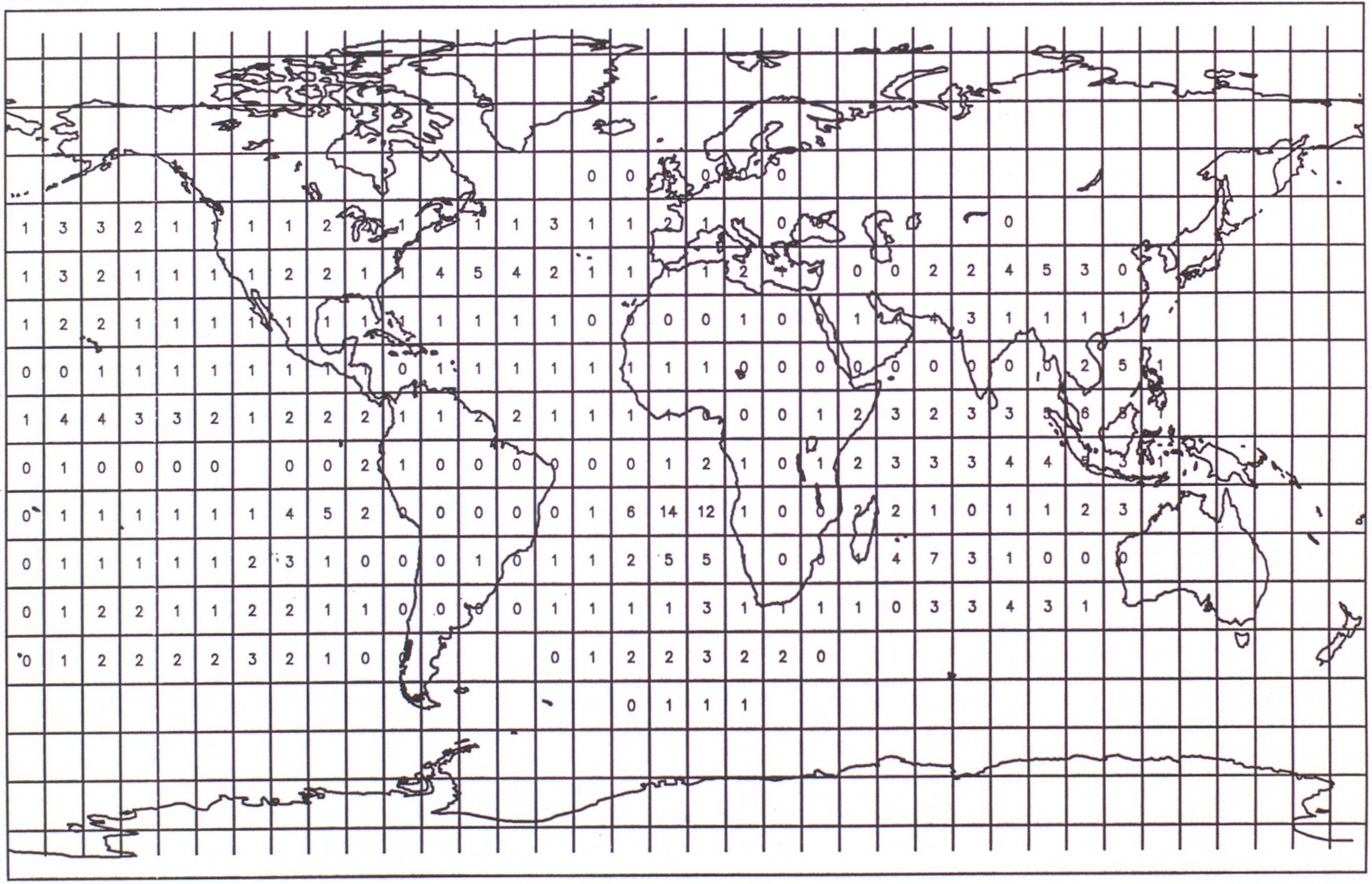
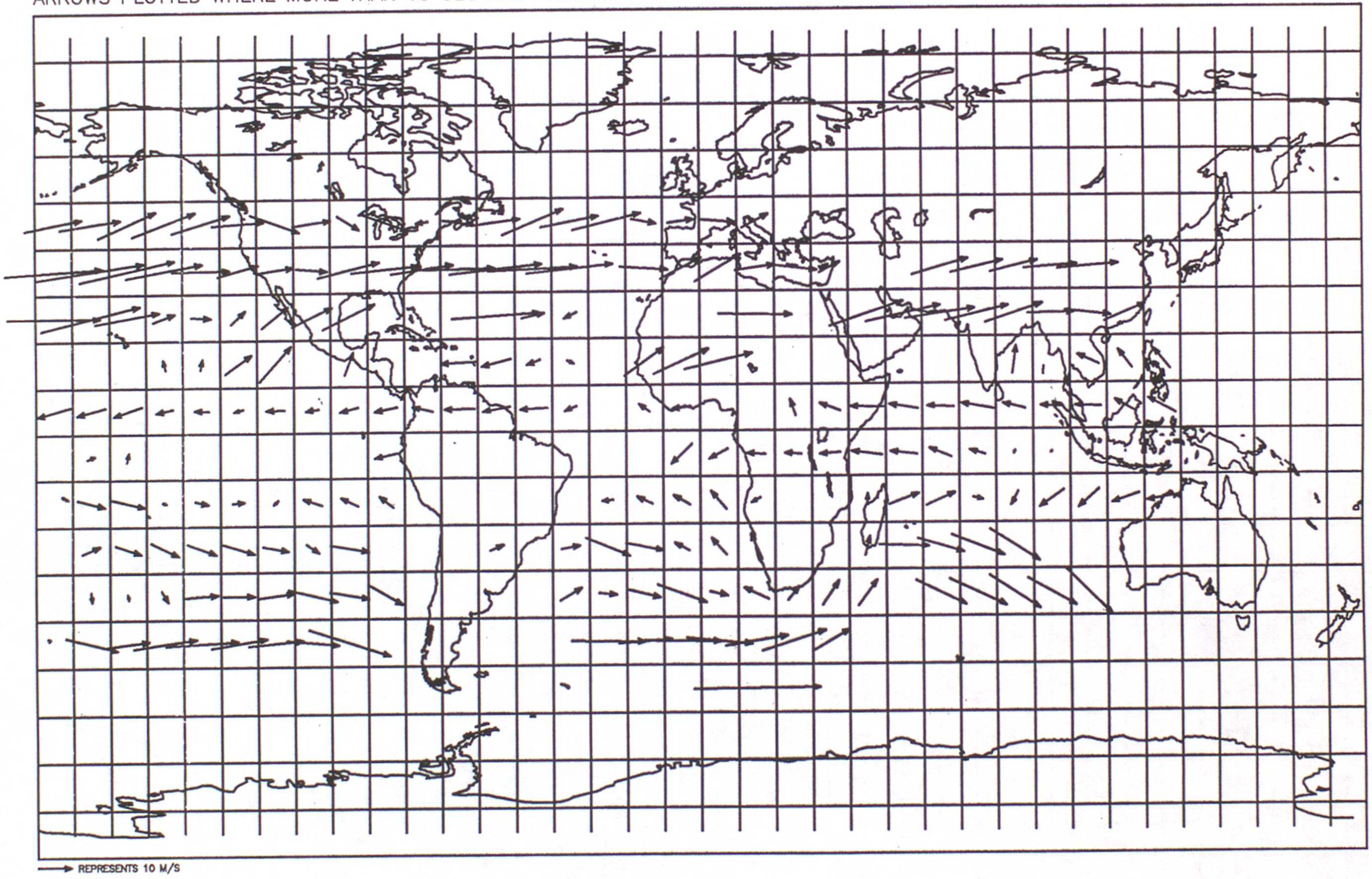

0 0 0 0
1 3 3 2 1 1 1 1 2 1 1 1 3 1 1 2 1 0 0
1 3 2 1 1 1 1 2 2 1 1 4 5 4 2 1 1 1 1 2 0 0 0 2 2 4 5 3 0
1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 0 0 0 0 1 0 0 1 4 4 3 1 1 1 1
0 0 1 1 1 1 1 1 1 1 0 1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 0 2 5 1
1 4 4 3 3 2 1 2 2 2 1 1 2 2 1 1 1 1 0 0 0 1 2 3 2 3 3 5 6 5 1
0 1 0 0 0 0 0 0 2 1 0 0 0 0 0 0 1 2 1 0 1 2 3 3 3 4 4 5 3 1
0 1 1 1 1 1 1 4 5 2 0 0 0 0 0 1 6 14 12 1 0 0 2 2 1 0 1 1 2 3
0 1 1 1 1 1 2 3 1 0 0 0 1 0 1 1 1 2 5 5 0 0 4 7 3 1 0 0 0
0 1 2 2 1 1 2 2 1 1 0 0 0 0 1 1 1 1 3 1 1 1 1 0 3 3 4 3 1
0 1 2 2 2 2 3 2 1 0 0 0 1 2 2 3 2 2 0
0 1 1 1

FIGURE 16

SATOB VECTOR MEAN WINDS BETWEEN 401–700 HPA
DECEMBER 1995
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 10 M/S

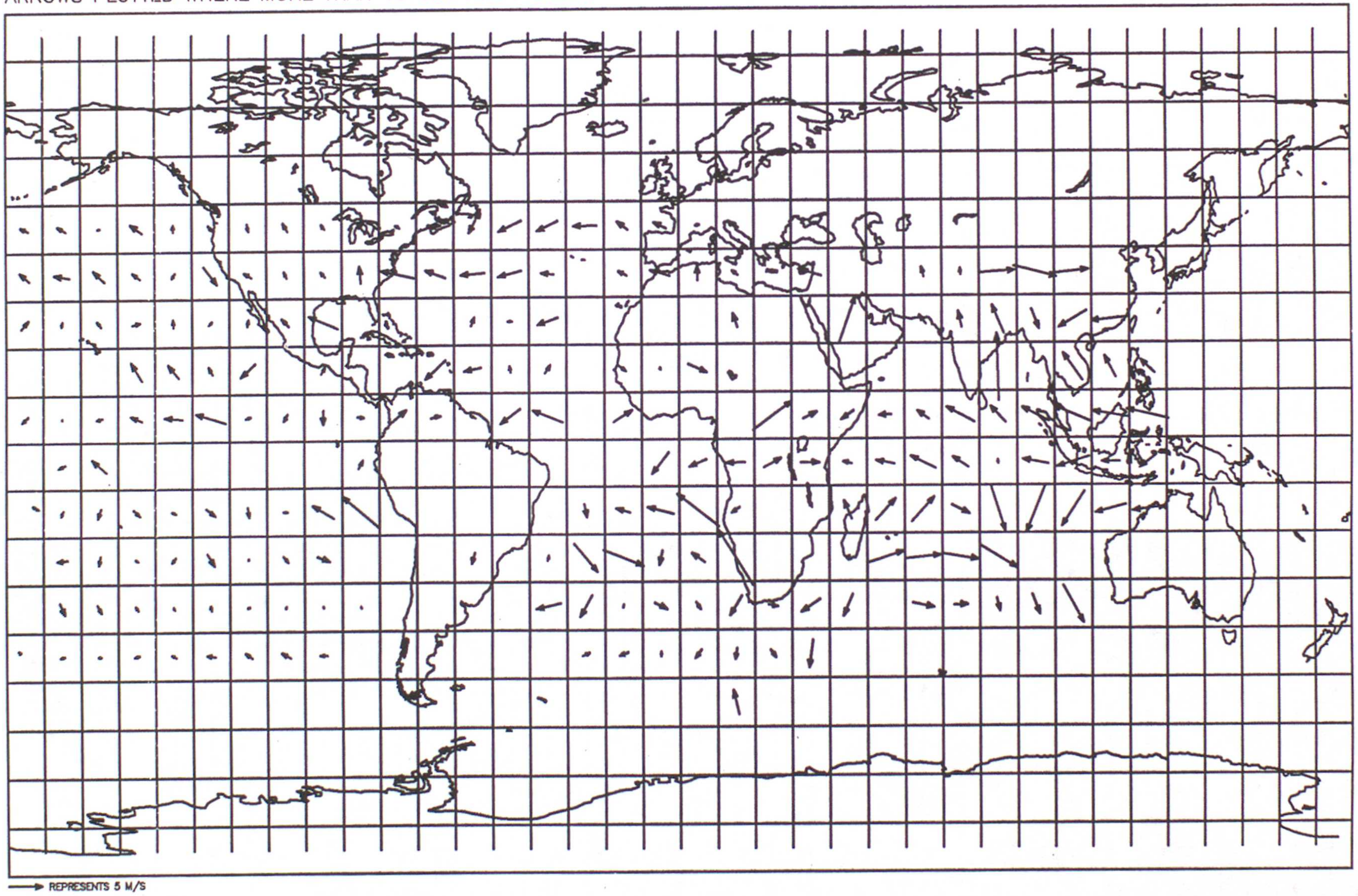
SATOB O−B VECTOR WIND DIFFERENCES BETWEEN 401−700 HPA

FIGURE 17

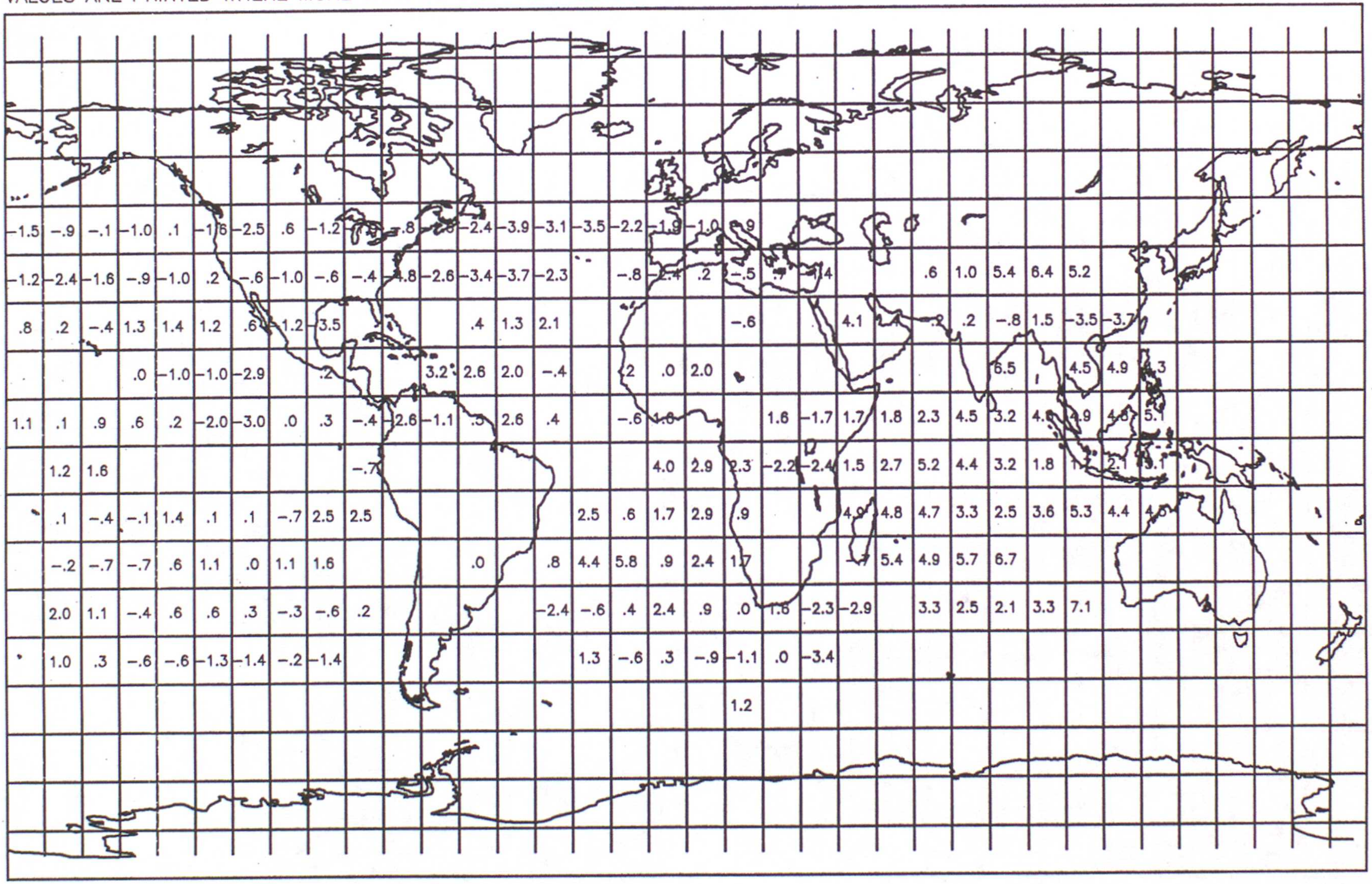
DECEMBER 1995

ALL OBSERVATIONS

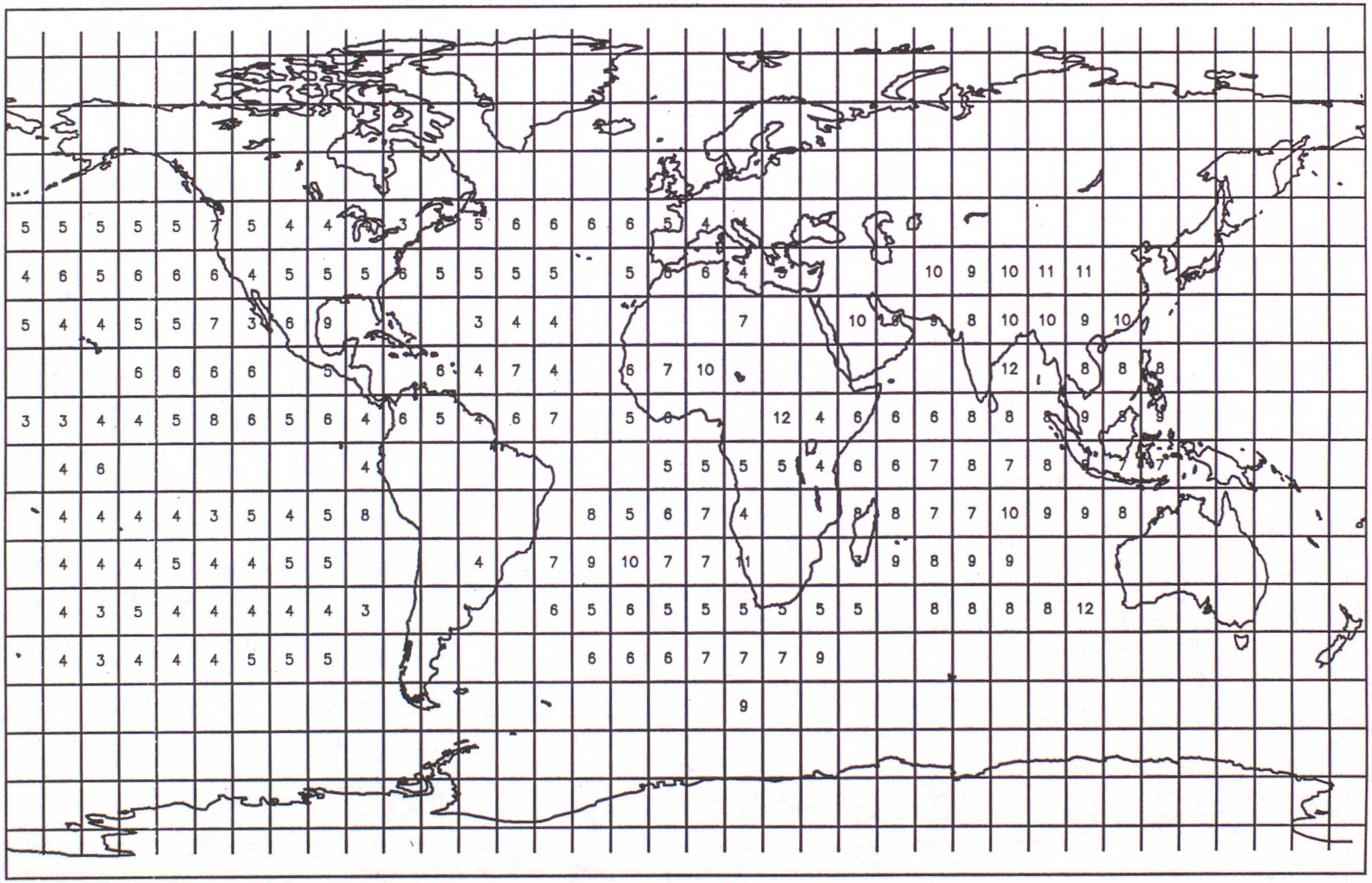
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT



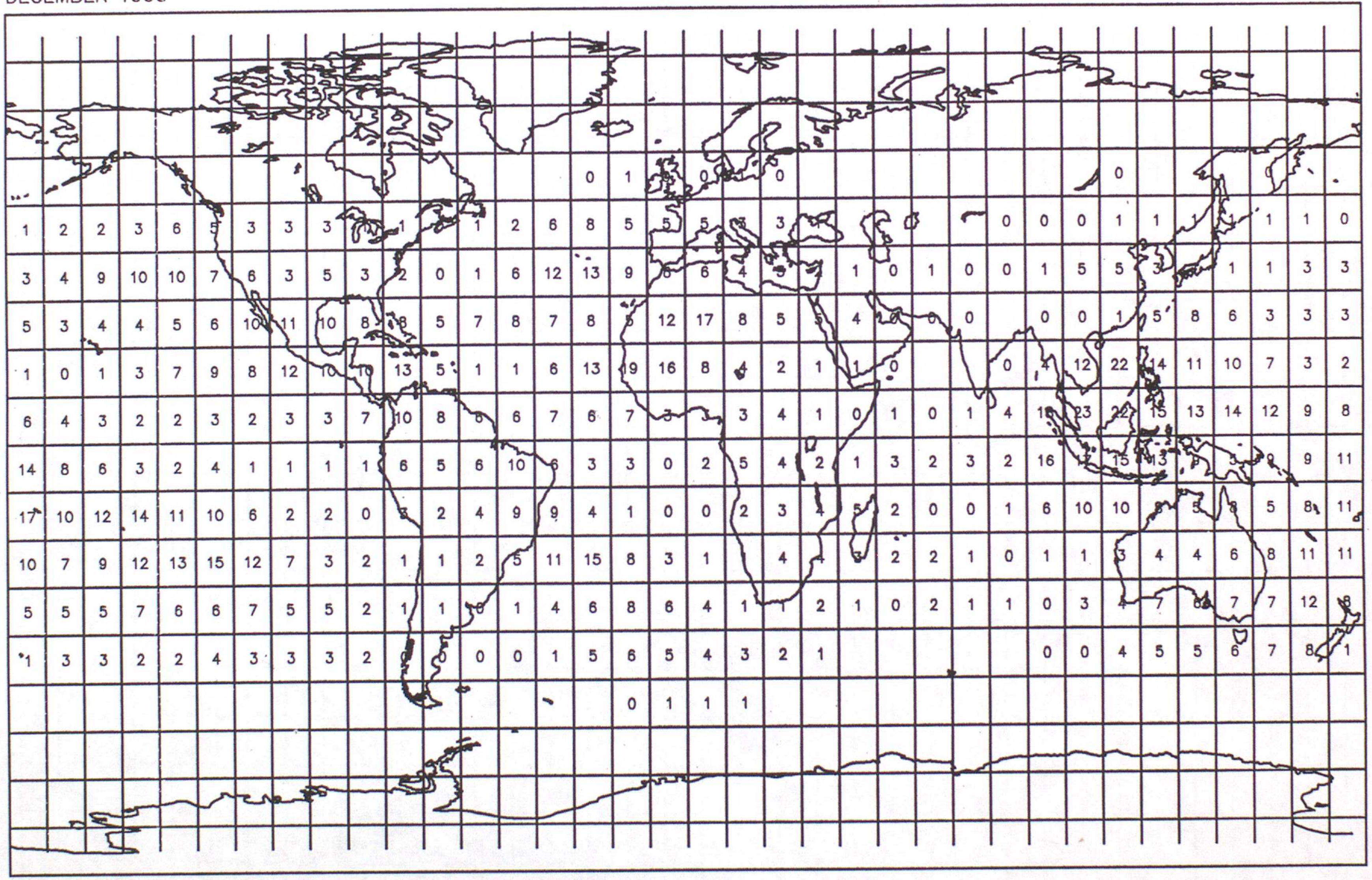
SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18
DECEMBER 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-1.5
-.9
-.1
-1.0
.1
-1.6
-2.5
.6
-1.2
.8
-2.4
-3.9
-3.1
-3.5
-2.2
-1.9
-1.0
.9
-1.2
-2.4
-1.6
-.9
-1.0
.2
-.6
-1.0
-.6
-.4
-.8
-2.6
-3.4
-3.7
-2.3
-.8
.2
-.5
.4
.6
1.0
5.4
6.4
5.2
.8
.2
-.4
1.3
1.4
1.2
.6
-1.2
-3.5
.4
1.3
2.1
-.6
4.1
.2
-.8
1.5
-3.5
-3.7
.0
-1.0
-1.0
-2.9
.2
3.2
2.6
2.0
-.4
.2
.0
2.0
6.5
4.5
4.9
.3
1.1
.1
.9
.6
.2
-2.0
-3.0
.0
.3
-.4
-2.6
-1.1
.5
2.6
.4
-.6
1.6
1.6
-1.7
1.7
1.8
2.3
4.5
3.2
4.9
5.1
1.2
1.6
-.7
4.0
2.9
2.3
-2.2
-2.4
1.5
2.7
5.2
4.4
3.2
1.8
2.1
3.1
.1
-.4
-.1
1.4
.1
.1
-.7
2.5
2.5
2.5
.6
1.7
2.9
.9
4.9
4.8
4.7
3.3
2.5
3.6
5.3
4.4
-.2
-.7
-.7
.6
1.1
.0
1.1
1.6
.0
.8
4.4
5.8
.9
2.4
1.7
-.7
5.4
4.9
5.7
6.7
2.0
1.1
-.4
.6
.6
.3
-.3
-.6
.2
-2.4
-.6
.4
2.4
.9
.0
1.6
-2.3
-2.9
3.3
2.5
2.1
3.3
7.1
1.0
.3
-.6
-.6
-1.3
-1.4
-.2
-1.4
1.3
-.6
.3
-.9
-1.1
.0
-3.4
1.2

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 19
DECEMBER 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT

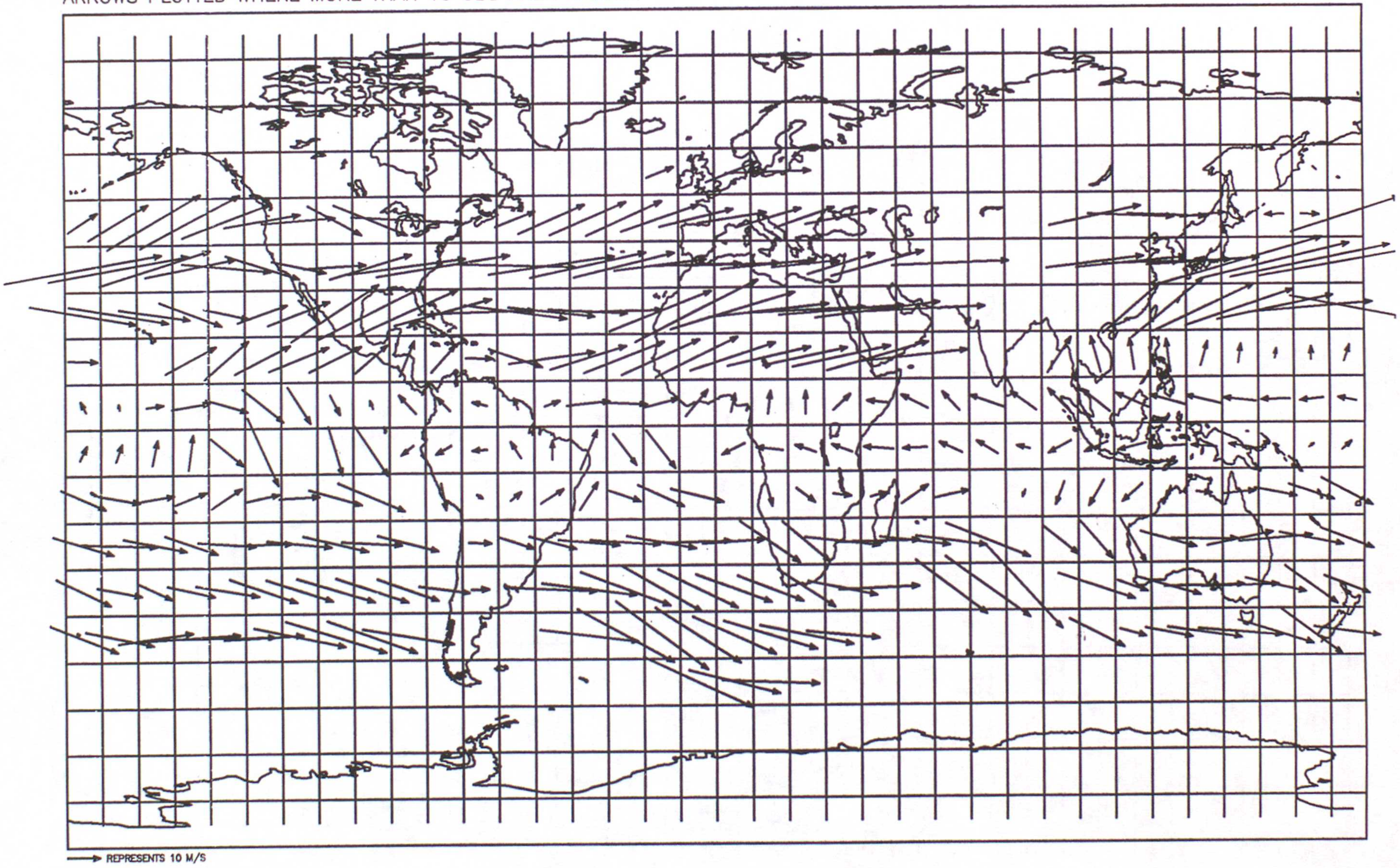

5 5 5 5 5 7 5 4 4 3 5 6 6 6 6 5 4 4
4 6 5 6 6 6 4 5 5 5 6 5 5 5 5 5 6 6 4 5 10 9 10 11 11
5 4 4 5 5 7 3 6 9 3 4 4 7 10 9 9 8 10 10 9 10
6 6 6 6 5 6 4 7 4 6 7 10 12 8 8 8
3 3 4 4 5 8 6 5 6 4 6 5 4 6 7 5 6 12 4 6 6 6 8 8 8 9 8 9
4 6 4 5 5 5 5 4 6 6 7 8 7 8 7
4 4 4 4 3 5 4 5 8 8 5 6 7 4 8 8 7 7 10 9 9 8 8
4 4 4 5 4 4 5 5 4 7 9 10 7 7 11 9 9 8 9 9
4 3 5 4 4 4 4 4 3 6 5 6 5 5 5 5 5 5 8 8 8 8 12
4 3 4 4 4 5 5 5 6 6 6 7 7 7 9
9

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
DECEMBER 1995


0 1 0 0 0 0
1 2 2 3 6 5 3 3 3 1 1 2 6 8 5 5 5 3 3 0 0 0 1 1 1 1 1 0
3 4 9 10 10 7 6 3 5 3 2 0 1 6 12 13 9 6 6 4 5 4 1 0 1 0 0 1 5 5 3 1 1 3 3
5 3 4 4 5 6 10 11 10 8 8 5 7 8 7 8 5 12 17 8 5 5 4 0 0 0 0 0 1 5 8 6 3 3 3
1 0 1 3 7 9 8 12 10 10 13 5 1 1 6 13 19 16 8 4 2 1 1 0 0 4 12 22 14 11 10 7 3 2
6 4 3 2 2 3 2 3 3 7 10 8 6 6 7 6 7 3 3 3 4 1 0 1 0 1 4 15 23 22 15 13 14 12 9 8
14 8 6 3 2 4 1 1 1 1 6 5 6 10 6 3 3 0 2 5 4 2 1 3 2 3 2 16 17 15 13 9 9 9 11
17 10 12 14 11 10 6 2 2 0 3 2 4 9 9 4 1 0 0 2 3 4 5 2 0 0 1 6 10 10 8 5 8 5 8 11
10 7 9 12 13 15 12 7 3 2 1 1 2 5 11 15 8 3 1 4 4 3 2 2 1 0 1 1 3 4 4 6 8 11 11
5 5 5 7 6 6 7 5 5 2 1 1 0 1 4 6 8 6 4 1 1 2 1 0 2 1 1 0 3 4 7 6 7 7 12 8
1 3 3 2 2 4 3 3 3 2 0 0 0 0 1 5 6 5 4 3 2 1 0 0 4 5 5 6 7 8 1
0 1 1 1

SATOB VECTOR MEAN WINDS BETWEEN 101–400 HPA
DECEMBER 1995
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 21


REPRESENTS 10 M/S

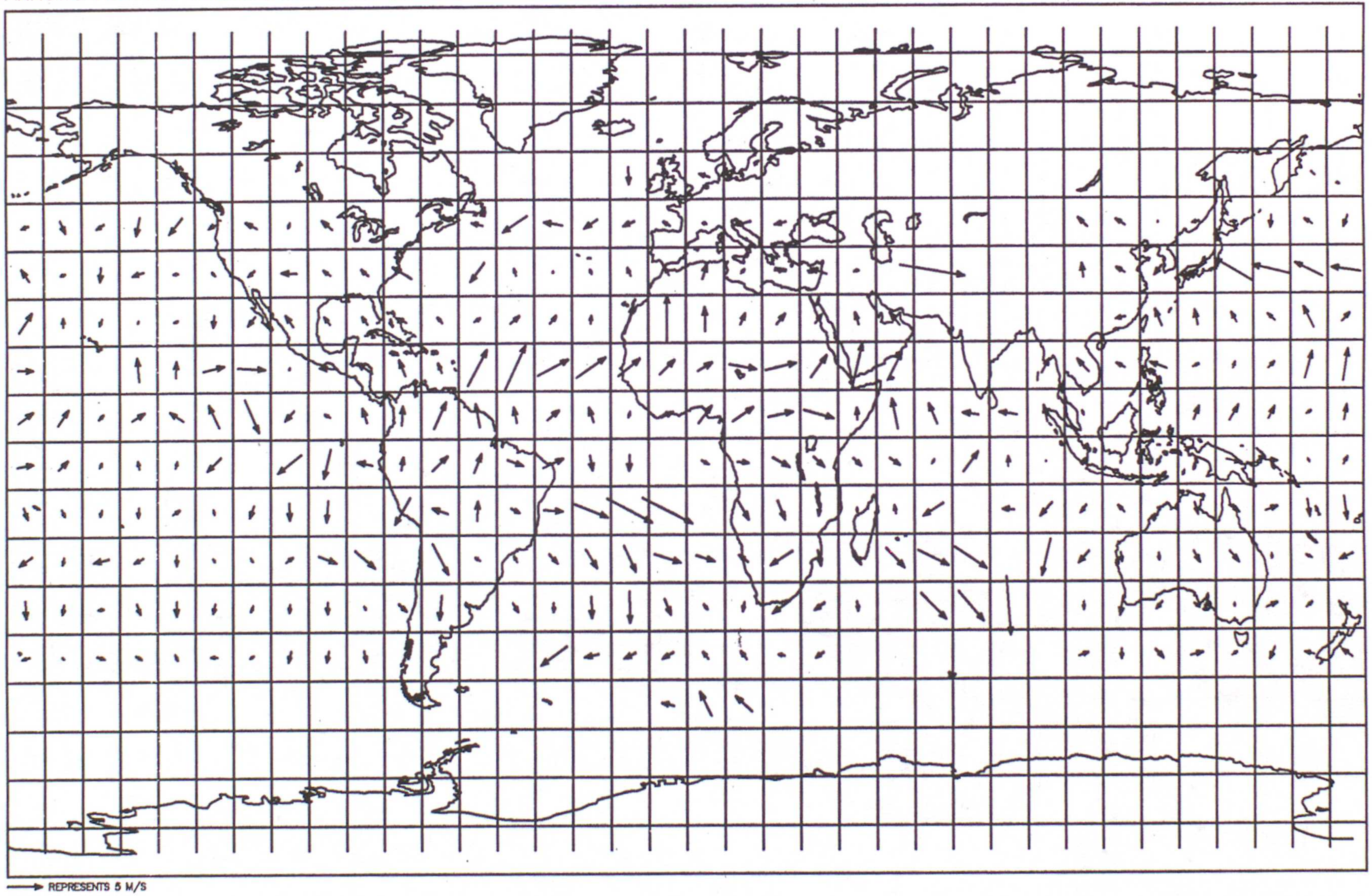
SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 101-400 HPA

DECEMBER 1995

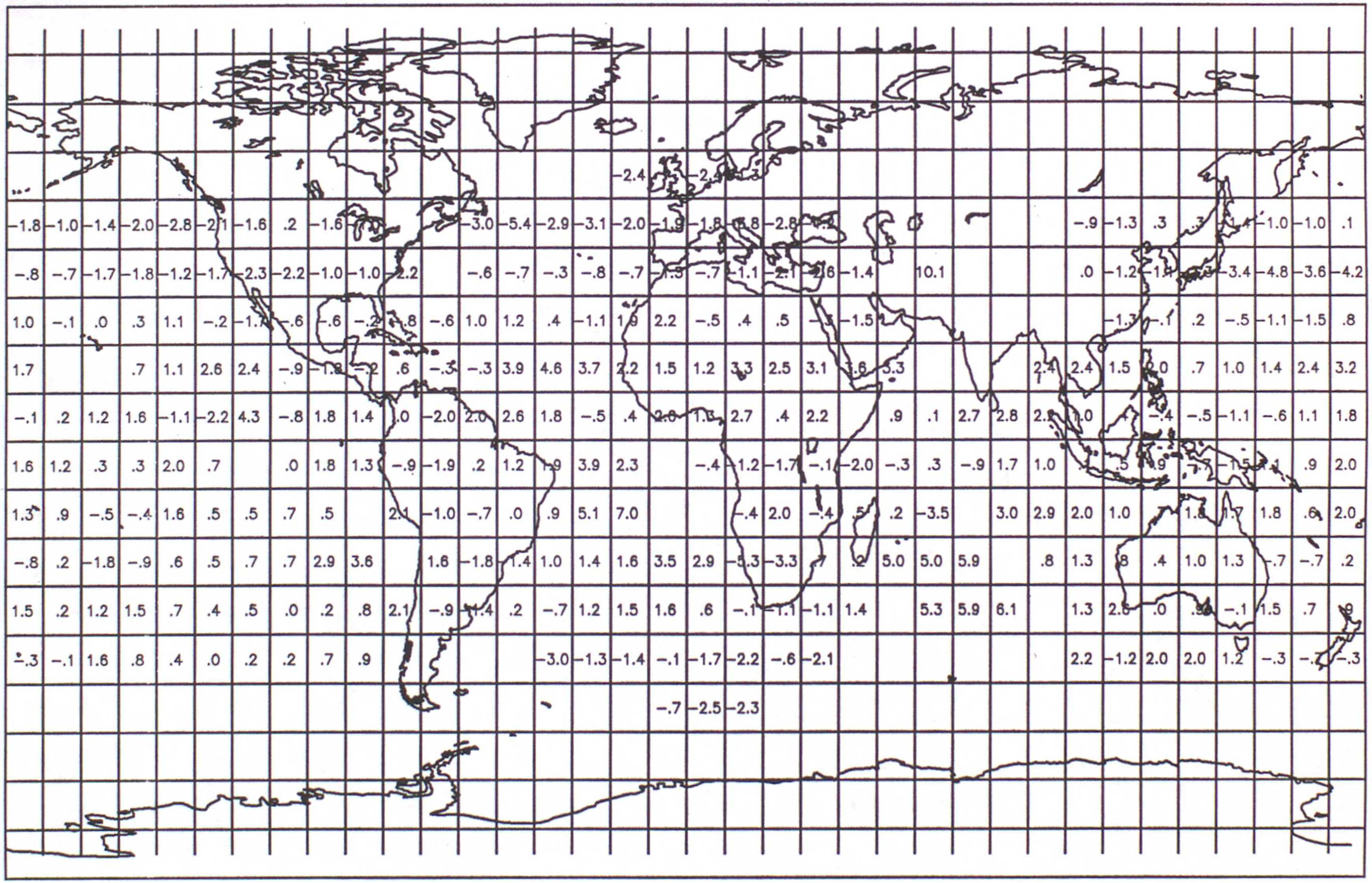
ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

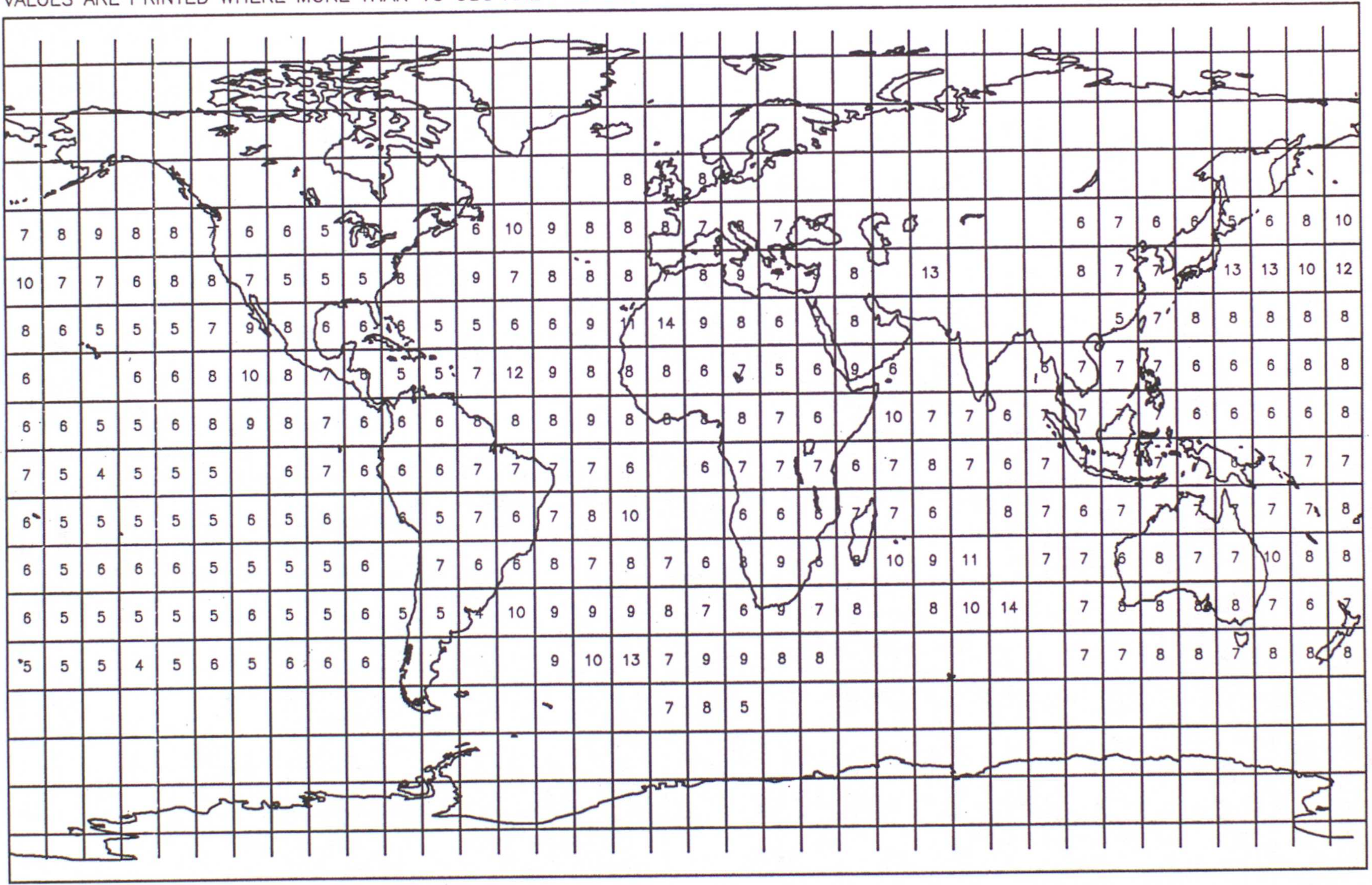
FIGURE 22



SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
DECEMBER 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


–2.4 –2.4 –1.3
–1.8 –1.0 –1.4 –2.0 –2.8 –2.1 –1.6 .2 –1.6 –3.0 –5.4 –2.9 –3.1 –2.0 –1.9 –1.8 –2.8 –2.8 –1.2 –.9 –1.3 .3 .3 –1.4 –1.0 –1.0 .1
–.8 –.7 –1.7 –1.8 –1.2 –1.7 –2.3 –2.2 –1.0 –1.0 –2.2 –.6 –.7 –.3 –.8 –.7 –1.3 –.7 –1.1 –2.1 –2.6 –1.4 10.1 .0 –1.2 –1.4 –.3 –3.4 –4.8 –3.6 –4.2
1.0 –.1 .0 .3 1.1 –.2 –1.7 –.6 –.6 –.2 –.8 –.6 1.0 1.2 .4 –1.1 1.9 2.2 –.5 .4 .5 –.1 –1.5 –1.3 –.1 .2 –.5 –1.1 –1.5 .8
1.7 .7 1.1 2.6 2.4 –.9 –1.8 –.2 .6 –.3 –.3 3.9 4.6 3.7 2.2 1.5 1.2 3.3 2.5 3.1 1.6 3.3 2.4 2.4 1.5 2.0 .7 1.0 1.4 2.4 3.2
–.1 .2 1.2 1.6 –1.1 –2.2 4.3 –.8 1.8 1.4 .0 –2.0 2.0 2.6 1.8 –.5 .4 2.0 1.6 2.7 .4 2.2 .9 .1 2.7 2.8 2.0 1.0 –.4 –.5 –1.1 –.6 1.1 1.8
1.6 1.2 .3 .3 2.0 .7 .0 1.8 1.3 –.9 –1.9 .2 1.2 1.9 3.9 2.3 –.4 –1.2 –1.7 –.1 –2.0 –.3 .3 –.9 1.7 1.0 .5 .9 .7 –1.5 .1 .9 2.0
1.3 .9 –.5 –.4 1.6 .5 .5 .7 .5 2.1 –1.0 –.7 .0 .9 5.1 7.0 –.4 2.0 –.4 .5 .2 –3.5 3.0 2.9 2.0 1.0 .7 1.8 1.7 1.8 .6 2.0
–.8 .2 –1.8 –.9 .6 .5 .7 .7 2.9 3.6 1.6 –1.8 1.4 1.0 1.4 1.6 3.5 2.9 –5.3 –3.3 .7 .2 5.0 5.0 5.9 .8 1.3 .8 .4 1.0 1.3 –.7 –.7 .2
1.5 .2 1.2 1.5 .7 .4 .5 .0 .2 .8 2.1 –.9 1.4 .2 –.7 1.2 1.5 1.6 .6 –.1 –1.1 –1.1 1.4 5.3 5.9 6.1 1.3 2.6 .0 .3 –.1 1.5 .7 .9
.3 –.1 1.6 .8 .4 .0 .2 .2 .7 .9 –3.0 –1.3 –1.4 –.1 –1.7 –2.2 –.6 –2.1 2.2 –1.2 2.0 2.0 1.2 –.3 –.7 –.3
–.7 –2.5 –2.3

SATOBS : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
DECEMBER 1995
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


8 8
7 8 9 8 8 7 6 6 5 6 10 9 8 8 8 7 8 7 6 7 6 6 5 6 8 10
10 7 7 6 8 8 7 5 5 5 8 9 7 8 8 8 7 8 9 7 9 8 13 8 7 7 13 13 10 12
8 6 5 5 5 7 9 8 6 6 6 5 5 6 6 9 11 14 9 8 6 7 8 5 7 8 8 8 8 8
6 6 6 8 10 8 7 6 5 5 7 12 9 8 8 8 6 7 5 6 9 6 6 7 7 7 6 6 6 8 8
6 6 5 5 6 8 9 8 7 6 6 6 8 8 8 9 8 8 8 8 7 6 10 7 7 6 7 7 7 6 6 6 6 8
7 5 4 5 5 5 6 7 6 6 6 7 7 7 7 6 6 7 7 7 6 7 8 7 6 7 7 7 8 7 7 7
6 5 5 5 5 5 6 5 6 6 5 7 6 7 8 10 6 6 6 7 7 6 8 7 6 7 7 7 7 7 7 8
6 5 6 6 6 5 5 5 5 6 7 6 6 8 7 8 7 6 8 9 6 8 10 9 11 7 7 6 8 7 7 10 8 8
6 5 5 5 5 5 6 5 5 6 5 5 4 10 9 9 9 8 7 6 9 7 8 8 10 14 7 8 8 8 8 7 6 7
5 5 5 4 5 6 5 6 6 6 9 10 13 7 9 9 8 8 7 7 8 8 7 8 8 8
7 8 5

MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: BRACKNELL

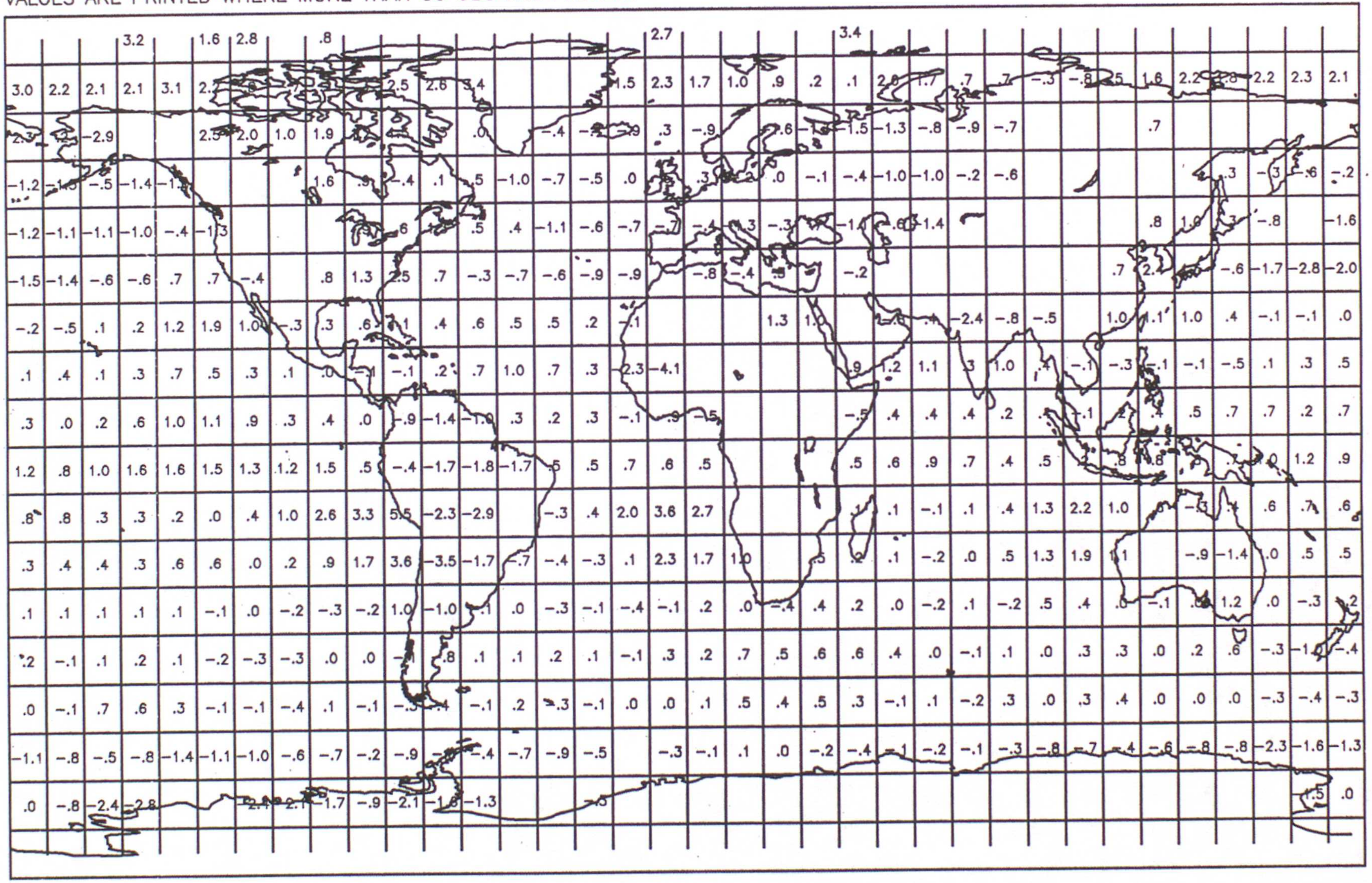
MONTH:December, 1995

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from NOAA-12, NOAA-14 500 km.
Standard of comparison	:Background field from Bracknell global model.
Selection Criteria	:All SATEM soundings where number of observations > 30.
Data Extracted	:Layer: 850 - 1000 hPa 100 - 300 hPa 30 - 50 hPa
	:Mean observation minus background temperature differences

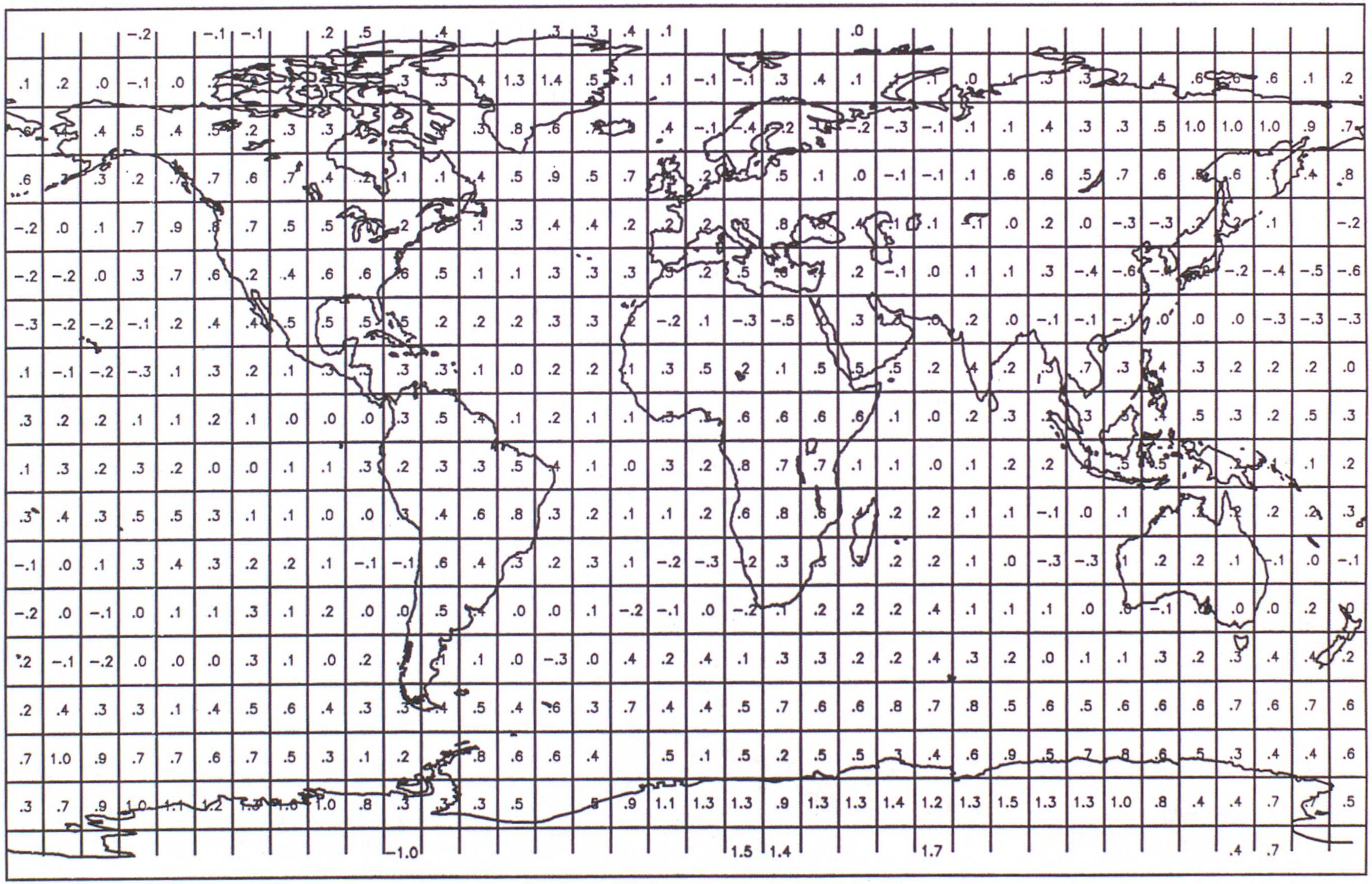
500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
DECEMBER 1995
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 25



500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
DECEMBER 1995
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 26



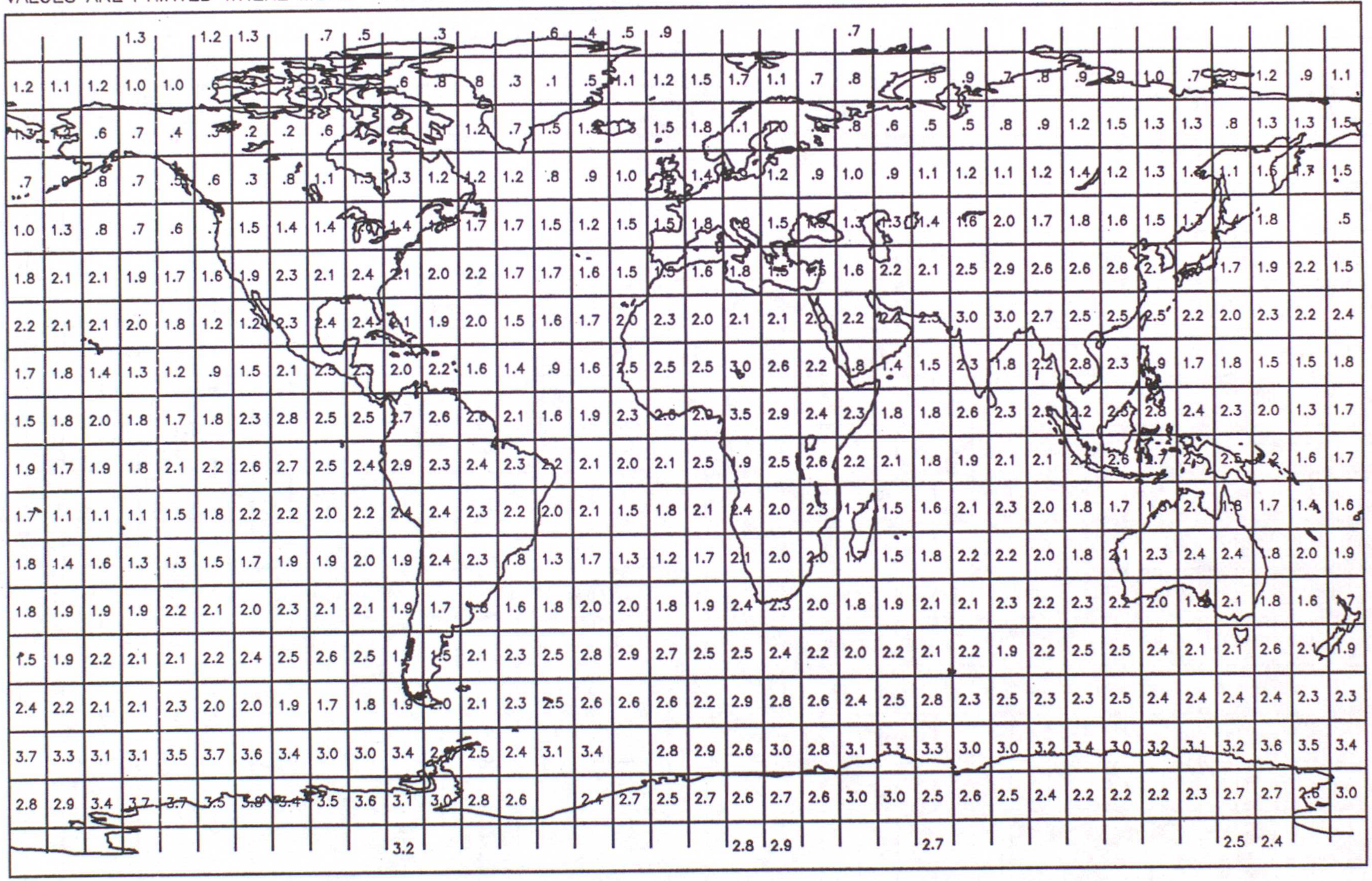
500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA

FIGURE 27

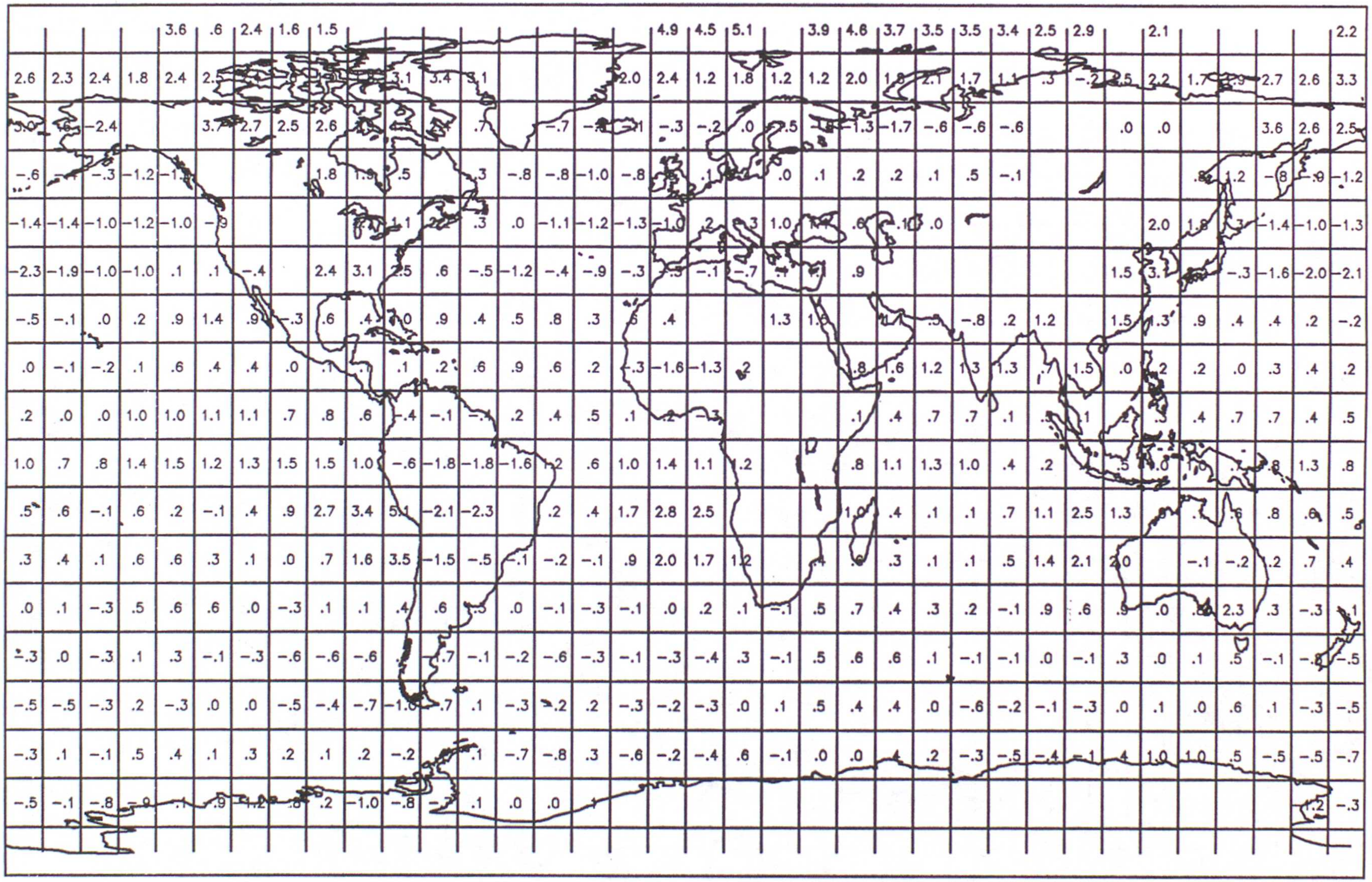
DECEMBER 1995

NOAA–12, USING ALL OBSERVATIONS

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

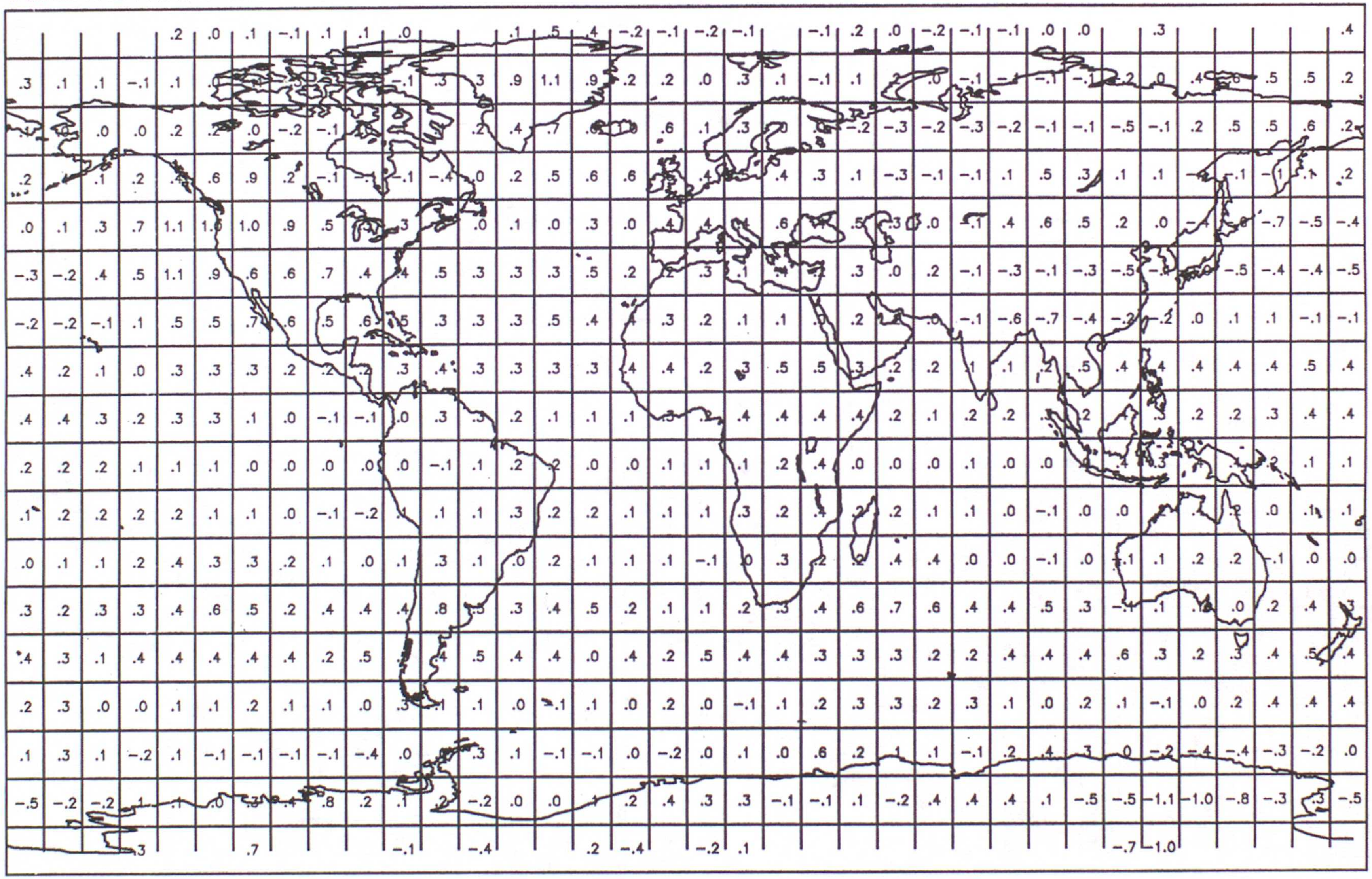

1.3 1.2 1.3 .7 .5 .3 .6 .4 .5 .9 .7
1.2 1.1 1.2 1.0 1.0 .6 .8 .8 .3 .1 .5 1.1 1.2 1.5 1.7 1.1 .7 .8 .7 .6 .9 .7 .8 .9 .9 1.0 .7 .9 1.2 .9 1.1
1.3 1.2 .6 .7 .4 .3 .2 .2 .6 1.2 .7 1.5 1.3 1.3 1.5 1.8 1.1 1.0 .8 .8 .6 .5 .5 .8 .9 1.2 1.5 1.3 1.3 .8 1.3 1.3 1.5
.7 .8 .7 .5 .6 .3 .8 1.1 1.3 1.3 1.2 1.2 1.2 .8 .9 1.0 1.4 1.2 .9 1.0 .9 1.1 1.2 1.1 1.2 1.4 1.2 1.3 1.1 1.5 1.7 1.5
1.0 1.3 .8 .7 .6 .7 1.5 1.4 1.4 1.0 1.4 1.7 1.7 1.5 1.2 1.5 1.5 1.8 1.8 1.5 1.3 1.3 1.4 1.6 2.0 1.7 1.8 1.6 1.5 1.3 1.8 .5
1.8 2.1 2.1 1.9 1.7 1.6 1.9 2.3 2.1 2.4 2.1 2.0 2.2 1.7 1.7 1.6 1.5 1.5 1.6 1.8 1.5 1.5 1.6 2.2 2.1 2.5 2.9 2.6 2.6 2.6 2.1 1.7 1.9 2.2 1.5
2.2 2.1 2.1 2.0 1.8 1.2 1.2 2.3 2.4 2.4 2.1 1.9 2.0 1.5 1.6 1.7 2.0 2.3 2.0 2.1 2.1 2.2 2.4 2.3 3.0 3.0 2.7 2.5 2.5 2.5 2.2 2.0 2.3 2.2 2.4
1.7 1.8 1.4 1.3 1.2 .9 1.5 2.1 2.5 2.3 2.0 2.2 1.6 1.4 .9 1.6 2.5 2.5 2.5 3.0 2.6 2.2 1.8 1.4 1.5 2.3 1.8 2.2 2.8 2.3 .9 1.7 1.8 1.5 1.5 1.8
1.5 1.8 2.0 1.8 1.7 1.8 2.3 2.8 2.5 2.5 2.7 2.6 2.6 2.1 1.6 1.9 2.3 2.6 2.9 3.5 2.9 2.4 2.3 1.8 1.8 2.6 2.3 2.5 2.2 2.3 2.8 2.4 2.3 2.0 1.3 1.7
1.9 1.7 1.9 1.8 2.1 2.2 2.6 2.7 2.5 2.4 2.9 2.3 2.4 2.3 2.2 2.1 2.0 2.1 2.5 1.9 2.5 2.6 2.2 2.1 1.8 1.9 2.1 2.1 2.1 2.6 1.7 2.5 2.5 2.2 1.6 1.7
1.7 1.1 1.1 1.1 1.5 1.8 2.2 2.2 2.0 2.2 2.4 2.4 2.3 2.2 2.0 2.1 1.5 1.8 2.1 2.4 2.0 2.3 1.7 1.5 1.6 2.1 2.3 2.0 1.8 1.7 1.6 2.1 1.8 1.7 1.4 1.6
1.8 1.4 1.6 1.3 1.3 1.5 1.7 1.9 1.9 2.0 1.9 2.4 2.3 1.8 1.3 1.7 1.3 1.2 1.7 2.1 2.0 2.0 1.7 1.5 1.8 2.2 2.2 2.0 1.8 2.1 2.3 2.4 2.4 1.8 2.0 1.9
1.8 1.9 1.9 1.9 2.2 2.1 2.0 2.3 2.1 2.1 1.9 1.7 1.8 1.6 1.8 2.0 2.0 1.8 1.9 2.4 2.3 2.0 1.8 1.9 2.1 2.1 2.3 2.2 2.3 2.2 2.0 1.8 2.1 1.8 1.6 1.7
1.5 1.9 2.2 2.1 2.1 2.2 2.4 2.5 2.6 2.5 1.5 2.1 2.3 2.5 2.8 2.9 2.7 2.5 2.5 2.4 2.2 2.0 2.2 2.1 2.2 1.9 2.2 2.5 2.5 2.4 2.1 2.1 2.6 2.1 1.9
2.4 2.2 2.1 2.1 2.3 2.0 2.0 1.9 1.7 1.8 1.9 2.0 2.1 2.3 2.5 2.6 2.6 2.6 2.2 2.9 2.8 2.6 2.4 2.5 2.8 2.3 2.5 2.3 2.3 2.5 2.4 2.4 2.4 2.4 2.3 2.3
3.7 3.3 3.1 3.1 3.5 3.7 3.6 3.4 3.0 3.0 3.4 2.5 2.4 3.1 3.4 2.8 2.9 2.6 3.0 2.8 3.1 3.3 3.3 3.0 3.0 3.2 3.4 3.0 3.2 3.1 3.2 3.6 3.5 3.4
2.8 2.9 3.4 3.7 3.7 3.5 3.8 3.4 3.5 3.6 3.1 3.0 2.8 2.6 2.4 2.7 2.5 2.7 2.6 2.7 2.6 3.0 3.0 2.5 2.6 2.5 2.4 2.2 2.2 2.2 2.3 2.7 2.7 2.6 3.0
3.2 2.8 2.9 2.7 2.5 2.4

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
DECEMBER 1995 FIGURE 28
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

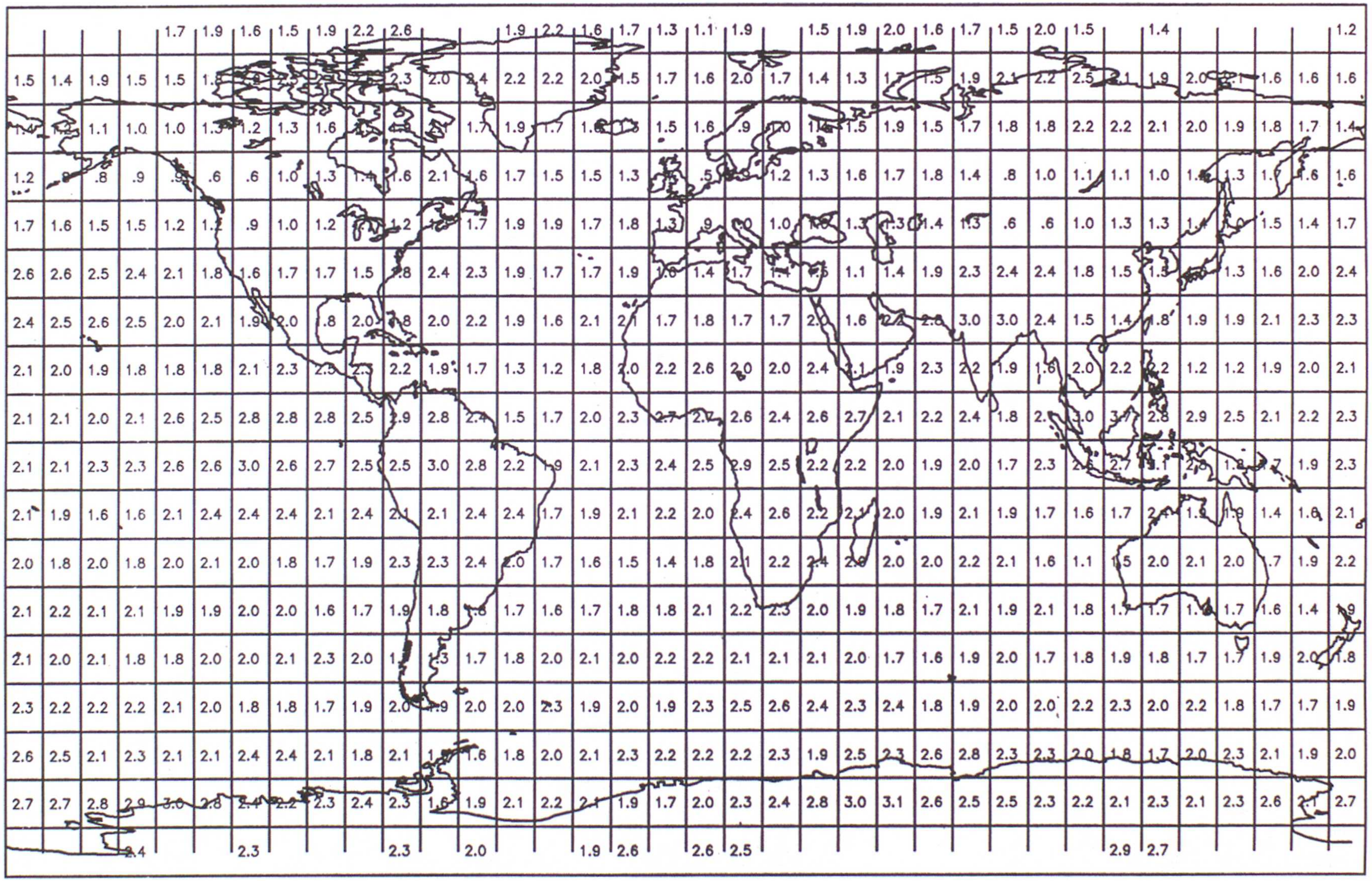

3.6 .6 2.4 1.6 1.5 4.9 4.5 5.1 3.9 4.6 3.7 3.5 3.5 3.4 2.5 2.9 2.1 2.2
2.6 2.3 2.4 1.8 2.4 2.5 3.1 3.4 3.1 2.0 2.4 1.2 1.8 1.2 1.2 2.0 1.8 2.1 1.7 1.1 .3 −.2 2.5 2.2 1.7 2.9 2.7 2.6 3.3
3.0 1.6 −2.4 3.7 2.7 2.5 2.6 .7 −.7 −.3 −.2 .0 2.5 −1.3 −1.7 −.6 −.6 −.6 .0 .0 3.6 2.6 2.5
−.6 −.3 −1.2 1.8 .5 .3 −.8 −.8 −1.0 −.8 .1 .0 .1 .2 .2 .1 .5 −.1 .8 1.2 −.8 −.9 −1.2
−1.4 −1.4 −1.0 −1.2 −1.0 −.9 1.1 .3 .0 −1.1 −1.2 −1.3 −1.0 .2 .3 1.0 .6 .1 .0 2.0 1.8 .3 −1.4 −1.0 −1.3
−2.3 −1.9 −1.0 −1.0 .1 .1 −.4 2.4 3.1 2.5 .6 −.5 −1.2 −.4 −.9 −.3 −.1 −.7 .9 1.5 3.1 −.3 −1.6 −2.0 −2.1
−.5 −.1 .0 .2 .9 1.4 .9 −.3 .6 .4 1.0 .9 .4 .5 .8 .3 .6 .4 1.3 1.6 −.8 .2 1.2 1.5 1.3 .9 .4 .4 .2 −.2
.0 −.1 −.2 .1 .6 .4 .4 .0 .1 .1 .2 .6 .9 .6 .2 −.3 −1.6 −1.3 .2 .8 1.6 1.2 1.3 1.3 .7 1.5 .0 .2 .2 .0 .3 .4 .2
.2 .0 .0 1.0 1.0 1.1 1.1 .7 .8 .6 −.4 −.1 .2 .4 .5 .1 .2 −.3 .1 .4 .7 .7 .1 .1 .4 .7 .7 .4 .5
1.0 .7 .8 1.4 1.5 1.2 1.3 1.5 1.5 1.0 −.6 −1.8 −1.8 −1.6 .2 .6 1.0 1.4 1.1 1.2 .8 1.1 1.3 1.0 .4 .2 .5 1.0 1.0 .8 1.3 .8
.5 .6 −.1 .6 .2 −.1 .4 .9 2.7 3.4 5.1 −2.1 −2.3 .2 .4 1.7 2.8 2.5 1.0 .4 .1 .1 .7 1.1 2.5 1.3 .6 .8 .6 .5
.3 .4 .1 .6 .6 .3 .1 .0 .7 1.6 3.5 −1.5 −.5 −.1 −.2 −.1 .9 2.0 1.7 1.2 .4 .6 .3 .1 .1 .5 1.4 2.1 2.0 −.1 −.2 .2 .7 .4
.0 .1 −.3 .5 .6 .6 .0 −.3 .1 .1 .4 .6 .3 .0 −.1 −.3 −.1 .0 .2 .1 −.1 .5 .7 .4 .3 .2 −.1 .9 .6 .9 .0 .8 2.3 .3 −.3 .1
−.3 .0 −.3 .1 .3 −.1 −.3 −.6 −.6 −.6 −.7 −.1 −.2 −.6 −.3 −.1 −.3 −.4 .3 −.1 .5 .6 .6 .1 −.1 −.1 .0 −.1 .3 .0 .1 .5 −.1 −.8 −.5
−.5 −.5 −.3 .2 −.3 .0 .0 −.5 −.4 −.7 −1.0 .7 .1 −.3 .2 .2 −.3 −.2 −.3 .0 .1 .5 .4 .4 .0 −.6 −.2 −.1 −.3 .0 .1 .0 .6 .1 −.3 −.5
−.3 .1 −.1 .5 .4 .1 .3 .2 .1 .2 −.2 .1 −.7 −.8 .3 −.6 −.2 −.4 .6 −.1 .0 .0 .4 .2 −.3 −.5 −.4 −.1 .4 1.0 1.0 .5 −.5 −.5 −.7
−.5 −.1 −.8 −.9 .1 .9 −1.2 .8 .2 −1.0 −.8 −.7 .1 .0 .0 .1 1.2 −.3

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
DECEMBER 1995
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 29


.2 .0 .1 –.1 .1 .1 .0 .1 .5 .4 –.2 –.1 –.2 –.1 –.1 .2 .0 –.2 –.1 –.1 .0 .0 .3 .4
.3 .1 .1 –.1 .1 –.1 .3 .3 .9 1.1 .9 .2 .2 .0 .3 .1 –.1 .1 –.1 –.1 –.1 .2 .0 .4 .5 .5 .2
.0 .0 .2 .0 –.2 –.1 .2 .4 .7 .6 .1 .3 –.2 –.3 –.2 –.3 –.2 –.1 –.1 –.5 –.1 .2 .5 .5 .6 .2
.2 .1 .2 .6 .9 .2 –.1 –.1 –.4 .0 .2 .5 .6 .6 .4 .3 .1 –.3 –.1 –.1 .1 .5 .3 .1 .1 –.1 –.1 .2
.0 .1 .3 .7 1.1 1.0 .9 .5 .3 .0 .1 .0 .3 .0 .4 .4 .6 .5 .3 .0 –.1 .4 .6 .5 .2 .0 –.7 –.5 –.4
–.3 –.2 .4 .5 1.1 .9 .6 .6 .7 .4 .4 .5 .3 .3 .3 .5 .2 .3 .1 .3 .0 .2 –.1 –.3 –.1 –.3 –.5 –.5 –.4 –.4 –.5
–.2 –.2 –.1 .1 .5 .5 .7 .6 .5 .6 .5 .3 .3 .3 .5 .4 .3 .2 .1 .1 .2 –.1 –.6 –.7 –.4 –.2 –.2 .0 .1 .1 –.1 –.1
.4 .2 .1 .0 .3 .3 .3 .2 .2 .3 .4 .3 .3 .3 .3 .4 .4 .2 .3 .5 .5 .3 .2 .2 .1 .1 .2 .5 .4 .4 .4 .4 .4 .5 .4
.4 .4 .3 .2 .3 .3 .1 .0 –.1 –.1 .0 .3 .2 .1 .1 .1 .4 .4 .4 .4 .2 .1 .2 .2 .2 .2 .2 .3 .4 .4
.2 .2 .2 .1 .1 .1 .0 .0 .0 .0 .0 –.1 .1 .2 .2 .0 .0 .1 .1 .1 .2 .4 .0 .0 .0 .1 .0 .0 .4 .3 .2 .1 .1
.1 .2 .2 .2 .2 .1 .1 .0 –.1 –.2 .1 .1 .3 .2 .2 .1 .1 .1 .3 .2 .2 .2 .1 .1 .0 –.1 .0 .0 .2 .0 .1 .1
.0 .1 .1 .2 .4 .3 .3 .2 .1 .0 .1 .3 .1 .0 .2 .1 .1 .1 –.1 .0 .3 .2 .2 .4 .4 .0 .0 –.1 .0 .1 .1 .2 .2 –.1 .0 .0
.3 .2 .3 .3 .4 .6 .5 .2 .4 .4 .4 .8 .3 .3 .4 .5 .2 .1 .1 .2 .3 .4 .6 .7 .6 .4 .4 .5 .3 .1 .0 .2 .4 .3
.4 .3 .1 .4 .4 .4 .4 .4 .2 .5 .4 .5 .4 .4 .0 .4 .2 .5 .4 .4 .3 .3 .3 .2 .2 .4 .4 .4 .6 .3 .2 .3 .4 .5 .4
.2 .3 .0 .0 .1 .1 .2 .1 .1 .0 .3 .1 .1 .0 .1 .1 .0 .2 .0 –.1 .1 .2 .3 .3 .2 .3 .1 .0 .2 .1 –.1 .0 .2 .4 .4 .4
.1 .3 .1 –.2 .1 –.1 –.1 –.1 –.1 –.4 .0 .3 .1 –.1 –.1 .0 –.2 .0 .1 .0 .6 .2 .1 .1 –.1 .2 .4 .3 .0 –.2 –.4 –.4 –.3 –.2 .0
–.5 –.2 –.2 .1 .1 .0 .3 .4 .8 .2 .1 .2 –.2 .0 .0 .1 .2 .4 .3 .3 –.1 –.1 .1 –.2 .4 .4 .4 .1 –.5 –.5 –1.1 –1.0 –.8 –.3 .3 –.5
.3 .7 –.1 –.4 .2 –.4 –.2 .1 –.7 –1.0

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
DECEMBER 1995
FIGURE 30
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



				1.7	1.9	1.6	1.5	1.9	2.2	2.6			1.9	2.2	1.6	1.7	1.3	1.1	1.9		1.5	1.9	2.0	1.6	1.7	1.5	2.0	1.5		1.4					1.2
1.5	1.4	1.9	1.5	1.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.3	2.0	2.4	2.2	2.2	2.0	1.5	1.7	1.6	2.0	1.7	1.4	1.3	1.7	1.5	1.9	2.1	2.2	2.5	2.1	1.9	2.0	2.1	1.6	1.6	1.6
1.4	1.2	1.1	1.0	1.0	1.3	1.2	1.3	1.6	1.5	[illegible]	2.1	1.7	1.9	1.7	1.6	[illegible]	1.5	1.6	.9	1.0	1.6	1.5	1.9	1.5	1.7	1.8	1.8	2.2	2.2	2.1	2.0	1.9	1.8	1.7	1.4
1.2	.8	.8	.9	.9	.6	.6	1.0	1.3	1.4	1.6	2.1	1.6	1.7	1.5	1.5	1.3	[illegible]	.5	.9	1.2	1.3	1.6	1.7	1.8	1.4	.8	1.0	1.1	1.1	1.0	1.4	1.3	1.7	1.6	1.6
1.7	1.6	1.5	1.5	1.2	1.2	.9	1.0	1.2	[illegible]	1.2	[illegible]	1.7	1.9	1.9	1.7	1.8	1.3	.9	[illegible]	1.0	[illegible]	1.3	1.3	1.4	1.3	.6	.6	1.0	1.3	1.3	1.4	1.0	1.5	1.4	1.7
2.6	2.6	2.5	2.4	2.1	1.8	1.6	1.7	1.7	1.5	1.8	2.4	2.3	1.9	1.7	1.7	1.9	[illegible]	1.4	1.7	1.4	1.5	1.1	1.4	1.9	2.3	2.4	2.4	1.8	1.5	1.5	[illegible]	1.3	1.6	2.0	2.4
2.4	2.5	2.6	2.5	2.0	2.1	1.9	2.0	.8	2.0	1.8	2.0	2.2	1.9	1.6	2.1	2.1	1.7	1.8	1.7	1.7	2.0	1.6	2.2	[illegible]	3.0	3.0	2.4	1.5	1.4	1.8	1.9	1.9	2.1	2.3	2.3
2.1	2.0	1.9	1.8	1.8	1.8	2.1	2.3	2.5	2.3	2.2	1.9	1.7	1.3	1.2	1.8	2.0	2.2	2.6	2.0	2.0	2.4	2.1	1.9	2.3	2.2	1.9	1.6	2.0	2.2	2.2	1.2	1.2	1.9	2.0	2.1
2.1	2.1	2.0	2.1	2.6	2.5	2.8	2.8	2.8	2.5	2.9	2.8	2.4	1.5	1.7	2.0	2.3	2.7	2.7	2.6	2.4	2.6	2.7	2.1	2.2	2.4	1.8	[illegible]	3.0	3.7	2.8	2.9	2.5	2.1	2.2	2.3
2.1	2.1	2.3	2.3	2.6	2.6	3.0	2.6	2.7	2.5	2.5	3.0	2.8	2.2	1.9	2.1	2.3	2.4	2.5	2.9	2.5	2.2	2.2	2.0	1.9	2.0	1.7	2.3	[illegible]	2.7	3.1	[illegible]	[illegible]	1.7	1.9	2.3
2.1	1.9	1.6	1.6	2.1	2.4	2.4	2.4	2.1	2.4	2.1	2.1	2.4	2.4	1.7	1.9	2.1	2.2	2.0	2.4	2.6	2.2	2.1	2.0	1.9	2.1	1.9	1.7	1.6	1.7	2.4	1.9	1.9	1.4	1.6	2.1
2.0	1.8	2.0	1.8	2.0	2.1	2.0	1.8	1.7	1.9	2.3	2.3	2.4	2.0	1.7	1.6	1.5	1.4	1.8	2.1	2.2	2.4	2.9	2.0	2.0	2.2	2.1	1.6	1.1	1.5	2.0	2.1	2.0	1.7	1.9	2.2
2.1	2.2	2.1	2.1	1.9	1.9	2.0	2.0	1.6	1.7	1.9	1.8	1.8	1.7	1.6	1.7	1.8	1.8	2.1	2.2	2.3	2.0	1.9	1.8	1.7	2.1	1.9	2.1	1.8	1.7	1.7	1.6	1.7	1.6	1.4	1.9
2.1	2.0	2.1	1.8	1.8	2.0	2.0	2.1	2.3	2.0	[illegible]	1.3	1.7	1.8	2.0	2.1	2.0	2.2	2.2	2.1	2.1	2.1	2.0	1.7	1.6	1.9	2.0	1.7	1.8	1.9	1.8	1.7	1.7	1.9	2.0	1.8
2.3	2.2	2.2	2.2	2.1	2.0	1.8	1.8	1.7	1.9	2.0	1.9	2.0	2.0	2.3	1.9	2.0	1.9	2.3	2.5	2.6	2.4	2.3	2.4	1.8	1.9	2.0	2.0	2.2	2.3	2.0	2.2	1.8	1.7	1.7	1.9
2.6	2.5	2.1	2.3	2.1	2.1	2.4	2.4	2.1	1.8	2.1	[illegible]	1.6	1.8	2.0	2.1	2.3	2.2	2.2	2.2	2.3	1.9	2.5	2.3	2.6	2.8	2.3	2.3	2.0	1.8	1.7	2.0	2.3	2.1	1.9	2.0
2.7	2.7	2.8	2.9	3.0	2.8	2.4	2.2	2.3	2.4	2.3	1.6	1.9	2.1	2.2	2.1	1.9	1.7	2.0	2.3	2.4	2.8	3.0	3.1	2.6	2.5	2.5	2.3	2.2	2.1	2.3	2.1	2.3	2.6	2.1	2.7
			2.4			2.3				2.3		2.0			1.9	2.6		2.6	2.5										2.9	2.7					

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH:December, 1995

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoy.
Area monitored		:10°N - 80°N, 85°W - 0°W
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:All hours combined.
Elements monitored		:Mean sea-level pressure (hPa) :Wind speed (m s^{-1}) :Wind direction (degrees)
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. A positive bias indicates the observation is veered to the background**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors
GROSS ERROR LIMITS	:15 hPa (pressure) :25 m s^{-1} (Vector Wind)	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
25565	58.5	-39.6	ALL	MSLP	SUR	607	0	0	1.8	0.1	1.8
29511	27.9	-60.2	ALL	MSLP	SUR	1	0	0	0.0	0.6	0.6
29512	37.2	-25.5	ALL	MSLP	SUR	8	0	0	1.2	-0.6	1.3
39512	25.6	-47.4	ALL	MSLP	SUR	23	0	0	1.4	-0.5	1.5
40604	27.1	-67.1	ALL	MSLP	SUR	1	0	0	0.0	0.1	0.1
40605	27.5	-54.3	ALL	MSLP	SUR	1	0	0	0.0	-0.4	0.4
40703	49.1	-17.2	ALL	MSLP	SUR	1	0	0	0.0	0.4	0.4
40704	47.5	-25.4	ALL	MSLP	SUR	8	0	0	1.2	1.9	2.3
40705	46.9	-28.6	ALL	MSLP	SUR	2	0	0	0.2	2.9	2.9
40706	50.2	-10.9	ALL	MSLP	SUR	1	0	0	0.0	2.0	2.0
40805	47.1	-27.4	ALL	MSLP	SUR	7	0	0	1.4	3.7	4.0
40806	42.7	-49.6	ALL	MSLP	SUR	1	0	0	0.0	1.8	1.8
40905	35.2	-48.1	ALL	MSLP	SUR	2	0	0	0.1	1.3	1.3
40906	44.5	-41.8	ALL	MSLP	SUR	5	0	0	0.8	1.7	1.9
41518	31.7	-70.3	ALL	MSLP	SUR	89	0	0	0.8	-0.1	0.8
41519	31.3	-73.3	ALL	MSLP	SUR	99	0	0	1.0	0.1	1.0
41526	34.8	-65.4	ALL	MSLP	SUR	240	0	0	1.2	0.0	1.2
41527	34.4	-69.7	ALL	MSLP	SUR	107	0	0	1.1	-0.2	1.1
41529	23.3	-68.4	ALL	MSLP	SUR	216	0	0	1.0	0.2	1.0
41530	33.8	-67.0	ALL	MSLP	SUR	88	0	0	1.0	0.0	1.0
41581	35.4	-65.4	ALL	MSLP	SUR	226	0	0	1.3	-0.1	1.3
41585	36.0	-66.4	ALL	MSLP	SUR	249	0	0	1.4	-0.1	1.4
41587	31.6	-75.4	ALL	MSLP	SUR	105	0	0	2.3	1.3	2.6
44547	33.9	-46.4	ALL	MSLP	SUR	221	0	0	1.8	1.7	2.5
44613	45.5	-18.7	ALL	MSLP	SUR	1259	5	0	1.4	-0.3	1.4
44616	57.2	-28.7	ALL	MSLP	SUR	1667	5	0	2.1	0.7	2.2
44727	48.0	-35.0	ALL	MSLP	SUR	1303	3	0	1.8	-0.2	1.8
44728	57.8	-30.7	ALL	MSLP	SUR	1506	3	0	1.8	0.0	1.8
44742	62.8	-37.5	ALL	MSLP	SUR	1900	1	0	1.8	0.1	1.8
44760	29.4	-31.5	ALL	MSLP	SUR	459	0	0	1.3	-0.3	1.3
44761	55.7	-47.3	ALL	MSLP	SUR	663	0	0	1.7	0.7	1.8
44763	56.6	-38.3	ALL	MSLP	SUR	1693	5	0	1.8	0.1	1.8
44765	55.8	-29.6	ALL	MSLP	SUR	1474	2	0	1.6	-0.1	1.6
44769	53.1	-24.8	ALL	MSLP	SUR	1534	1	0	1.5	0.1	1.5
44770	32.4	-39.7	ALL	MSLP	SUR	693	3	0	1.2	0.0	1.2
44773	50.6	-34.0	ALL	MSLP	SUR	1106	4	0	1.7	-0.1	1.7
44774	54.3	-48.4	ALL	MSLP	SUR	1572	1	0	1.8	0.0	1.8
44777	31.7	-30.9	ALL	MSLP	SUR	459	0	0	0.9	-0.2	0.9
49512	39.6	-71.2	ALL	MSLP	SUR	22	0	0	2.9	-1.4	3.2
62501	50.4	-19.4	ALL	MSLP	SUR	593	0	0	1.4	0.1	1.4
62502	43.5	-14.1	ALL	MSLP	SUR	2	1	50	0.0	1.8	1.8
62503	46.1	-16.3	ALL	MSLP	SUR	548	0	0	1.4	0.2	1.4
62504	46.5	-16.1	ALL	MSLP	SUR	532	0	0	1.4	0.1	1.4
62518	41.4	-14.4	ALL	MSLP	SUR	542	0	0	1.2	-0.1	1.2
62694	62.4	-31.3	ALL	MSLP	SUR	1794	5	0	1.9	0.2	1.9
63661	67.6	-22.1	ALL	MSLP	SUR	199	0	0	2.1	0.2	2.1
63665	76.5	-9.6	ALL	MSLP	SUR	758	0	0	2.2	-1.1	2.4
65581	55.8	-32.9	ALL	MSLP	SUR	34	1	3	3.7	1.9	4.2
65594	62.2	-38.8	ALL	MSLP	SUR	1853	6	0	2.4	-0.1	2.4
WIND SPEED											
29511	27.9	-60.2	ALL	SPEED	SUR	1	0	0	0.0	1.3	1.3
29512	37.2	-25.5	ALL	SPEED	SUR	7	0	0	2.6	1.8	3.2
39512	25.6	-47.4	ALL	SPEED	SUR	22	0	0	3.2	2.4	4.0
40604	27.1	-67.1	ALL	SPEED	SUR	1	0	0	0.0	1.8	1.8
40605	27.5	-54.3	ALL	SPEED	SUR	1	0	0	0.0	4.3	4.3
40703	49.1	-17.2	ALL	SPEED	SUR	1	0	0	0.0	5.8	5.8
40704	47.5	-25.4	ALL	SPEED	SUR	8	0	0	2.0	1.6	2.6
40705	46.9	-28.6	ALL	SPEED	SUR	2	0	0	2.9	1.6	3.4
40706	50.2	-10.9	ALL	SPEED	SUR	1	0	0	0.0	-0.2	0.2
40805	47.1	-27.4	ALL	SPEED	SUR	7	0	0	2.4	2.4	3.4

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND SPEED											
40806	42.7	-49.6	ALL	SPEED	SUR	1	0	0	0.0	-0.1	0.1
40905	35.2	-48.1	ALL	SPEED	SUR	2	0	0	0.9	1.0	1.3
40906	44.5	-41.8	ALL	SPEED	SUR	4	1	25	0.3	9.3	9.3
41526	34.8	-65.4	ALL	SPEED	SUR	234	0	0	2.5	-4.7	5.3
41529	23.3	-68.4	ALL	SPEED	SUR	208	0	0	1.7	-2.9	3.3
41585	36.0	-66.4	ALL	SPEED	SUR	245	0	0	2.2	-1.3	2.6
44613	45.5	-18.7	ALL	SPEED	SUR	1249	4	0	2.3	-0.4	2.3
44616	57.2	-28.7	ALL	SPEED	SUR	441	2	0	4.2	-11.1	11.9
44742	62.8	-37.5	ALL	SPEED	SUR	1870	1	0	3.0	-1.1	3.2
49512	39.6	-71.2	ALL	SPEED	SUR	21	1	5	6.1	2.5	6.6
62501	50.4	-19.4	ALL	SPEED	SUR	585	1	0	1.8	0.3	1.8
62502	43.5	-14.1	ALL	SPEED	SUR	1	1	100	0.0	0.0	0.0
62518	41.4	-14.4	ALL	SPEED	SUR	536	0	0	2.0	-0.3	2.1
WIND DIRECTION											
29511	27.9	-60.2	ALL	DIRN.	SUR	1	0	0	0.0	-13.5	13.5
29512	37.2	-25.5	ALL	DIRN.	SUR	7	0	0	26.0	-0.5	26.0
39512	25.6	-47.4	ALL	DIRN.	SUR	19	0	0	24.1	-0.8	24.2
40604	27.1	-67.1	ALL	DIRN.	SUR	1	0	0	0.0	18.0	18.0
40605	27.5	-54.3	ALL	DIRN.	SUR	1	0	0	0.0	-41.5	41.5
40703	49.1	-17.2	ALL	DIRN.	SUR	1	0	0	0.0	-5.1	5.1
40704	47.5	-25.4	ALL	DIRN.	SUR	6	0	0	9.3	8.8	12.8
40705	46.9	-28.6	ALL	DIRN.	SUR	2	0	0	1.6	3.6	3.9
40706	50.2	-10.9	ALL	DIRN.	SUR	1	0	0	0.0	-4.9	4.9
40805	47.1	-27.4	ALL	DIRN.	SUR	7	0	0	14.3	14.6	20.4
40806	42.7	-49.6	ALL	DIRN.	SUR	1	0	0	0.0	9.6	9.6
40905	35.2	-48.1	ALL	DIRN.	SUR	1	0	0	0.0	-15.0	15.0
40906	44.5	-41.8	ALL	DIRN.	SUR	4	1	25	34.0	6.4	34.6
41526	34.8	-65.4	ALL	DIRN.	SUR	211	0	0	17.6	8.9	19.8
41529	23.3	-68.4	ALL	DIRN.	SUR	127	0	0	30.0	24.1	38.5
41585	36.0	-66.4	ALL	DIRN.	SUR	234	0	0	19.7	15.9	25.3
44613	45.5	-18.7	ALL	DIRN.	SUR	1170	4	0	19.6	-2.7	19.8
44616	57.2	-28.7	ALL	DIRN.	SUR	429	2	0	106.8	-10.2	107.2
44742	62.8	-37.5	ALL	DIRN.	SUR	1622	1	0	23.8	0.7	23.8
49512	39.6	-71.2	ALL	DIRN.	SUR	20	1	5	48.0	-9.7	49.0
62501	50.4	-19.4	ALL	DIRN.	SUR	520	1	0	17.0	-11.0	20.3
62502	43.5	-14.1	ALL	DIRN.	SUR	1	1	100	0.0	0.0	0.0
62518	41.4	-14.4	ALL	DIRN.	SUR	515	0	0	20.4	2.1	20.5

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:December, 1995

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:40°N - 70°N, 60°W - 0°W.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:All hours combined.
Level(s) monitored		:300.0 - 150.0 hPa
Elements monitored		:TEMP in °C ; WIND in m s^{-1}
Parameters monitored	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.
GROSS ERROR LIMITS	:10.0 °C ; 60 m s^{-1} Vector Wind	
SELECTION CRITERIA	:N REP $\geq$ 20	

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	3070	0	1	1.8	-0.3	3082	0	2	0	8.0	1.1
AAN	101	0	3	1.8	-0.4	97	0	4	1	10.8	1.5
ACA	775	0	1	1.8	-0.4	792	0	1	0	7.1	0.6
AEA	393	1	65	3.4	1.1	390	0	4	0	9.7	1.2
AEL	432	0	6	2.4	-0.1	438	0	6	0	9.6	0.8
AFL	118	2	100	3.6	1.8	119	1	12	0	11.8	1.6
AFR	766	1	6	2.0	-0.2	783	0	6	0	7.9	1.0
AIC	26	0	0	2.1	-0.7	28	0	0	0	14.9	0.9
AIH	50	6	8	1.4	-0.1	51	0	8	0	9.2	0.3
ALW	23	0	0	1.4	-0.7	23	0	0	0	5.8	1.2
AMX	121	2	2	1.8	-0.3	123	0	2	0	9.2	0.7
AMY	100	1	1	2.3	-0.8	100	0	5	0	11.9	-0.2
ANZ	263	0	3	2.0	-1.3	264	0	2	0	7.6	0.5
AOM	235	0	4	1.9	0.9	237	0	5	0	9.9	0.9
ATN	88	1	13	2.6	-0.4	88	0	17	0	13.8	1.4
AUA	42	0	2	1.6	-0.7	43	0	5	0	7.1	0.7
AVA	98	1	0	2.1	0.2	103	0	3	0	8.4	0.9
AZA	326	0	6	2.7	1.1	327	0	3	0	8.6	0.8
BAL	153	1	13	2.1	-0.2	156	1	14	0	9.2	1.1
BAW	1285	1	4	1.9	-0.1	1299	0	4	0	8.1	1.2
BBB	21	19	5	1.6	-0.4	21	0	0	0	7.5	0.6
BBC	22	5	9	1.1	0.8	22	0	14	0	6.5	0.4
BWA	133	3	6	2.2	1.2	138	0	4	0	10.7	1.8
CDN	670	1	1	1.6	0.4	673	0	1	0	7.3	1.2
CFG	531	1	2	2.1	-1.0	539	0	2	0	8.4	0.4
CKS	24	4	21	2.8	0.5	24	0	21	0	15.9	3.0
CKT	46	0	13	1.9	1.1	47	0	21	0	9.2	0.9
CLX	110	0	1	1.9	-0.8	112	0	0	0	6.3	0.9
COA	310	2	4	1.8	0.8	320	0	5	0	8.8	1.4
CRL	141	1	2	2.0	0.4	142	0	2	0	8.7	1.0
CTM	45	4	29	2.6	-1.4	51	0	25	0	7.3	1.3
CUB	227	1	100	2.6	1.3	231	0	100	0	11.9	2.0
DAF	20	0	5	2.8	1.0	20	0	0	0	5.9	0.8
DAL	2114	0	2	1.8	0.4	2130	0	2	0	8.5	1.0
DHL	483	1	100	3.9	-2.2	485	0	5	0	9.0	1.4
DLH	2495	0	9	2.0	0.3	2452	0	11	1	8.0	1.0
DOA	138	1	16	1.9	0.3	147	0	19	0	11.0	0.8
EIA	151	3	11	2.1	-0.6	155	0	12	0	9.5	1.6
ELY	102	1	12	1.7	-0.1	105	0	15	0	8.4	1.7
EWW	107	3	100	2.7	0.6	106	0	100	0	13.3	0.1
FDX	446	1	3	2.0	0.6	452	0	3	0	8.2	1.6
FIN	364	0	3	1.8	0.3	358	0	4	0	7.7	0.5
GAF	53	0	6	2.2	1.1	53	0	8	0	11.0	0.6
GFA	31	0	0	1.4	0.0	30	0	0	0	6.3	1.5
HLA	24	25	33	2.8	0.0	24	0	17	0	13.4	3.3
HLF	50	0	4	1.8	-0.7	54	0	4	0	7.8	0.0
IBE	1065	1	23	2.5	0.2	1072	0	25	0	11.1	0.9
ICE	432	0	1	1.5	-0.1	427	0	3	2	7.1	1.0
KLM	1883	0	2	1.9	0.0	1892	0	2	0	8.2	1.4
LDA	124	0	7	2.3	-0.9	125	0	6	0	9.9	1.5
LDI	98	1	100	2.4	-1.1	98	0	8	0	9.3	0.6
LIB	78	1	3	2.1	0.9	79	0	0	0	9.3	1.0
LOT	225	0	4	1.8	-0.6	226	0	4	0	7.8	0.0
LTU	481	0	3	1.8	0.4	479	0	3	0	9.3	1.3
MPH	532	0	2	2.2	-0.9	533	0	3	0	8.6	0.8
NUG	108	0	2	1.9	-1.5	108	0	74	0	3.5	1.5
NWA	2044	1	2	1.9	1.0	2090	0	3	1	8.1	1.1
OAL	28	0	11	2.9	2.0	28	0	11	0	14.8	2.8
RJA	79	1	4	2.0	0.6	79	0	5	0	7.5	1.5

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
RRR	70	1	29	2.6	-0.8	71	0	24	0	9.8	0.1
SAB	60	0	3	1.9	-0.8	59	0	8	0	11.3	2.3
SAS	987	0	1	1.7	-0.2	981	0	3	1	7.5	0.8
SIA	63	2	5	2.5	-1.6	63	0	5	0	9.0	2.9
SPP	23	0	4	2.3	0.0	23	0	4	0	8.6	-0.4
SVA	101	0	3	1.6	-0.3	105	0	3	0	9.0	1.5
SWR	73	1	7	1.9	0.3	74	0	5	0	9.5	2.1
TAP	295	0	7	2.3	-0.1	296	0	7	0	10.1	0.8
TEJ	45	2	18	1.6	-0.4	45	0	22	0	8.4	2.4
TOW	124	0	0	1.9	-0.1	123	0	2	1	7.9	1.0
TWA	879	0	3	2.2	-0.2	895	0	3	0	8.0	0.8
UAL	1530	0	2	2.3	-1.1	1560	0	2	0	7.8	0.8
ULE	82	0	2	1.6	-0.1	85	0	7	0	9.4	1.3
UPS	467	0	16	1.8	0.0	477	0	17	0	8.1	1.6
USA	62	0	0	1.8	-0.7	64	0	0	0	7.0	0.2
VIA	70	1	1	2.0	1.4	72	0	3	0	8.5	1.0
VIR	186	1	3	1.7	-0.4	186	0	6	0	10.6	1.9
WOA	81	2	12	2.1	0.1	84	0	10	0	9.8	2.0
BA	8547	0	15	1.6	0.3	8540	0	16	0	7.7	1.5
KL	4169	0	16	1.5	0.3	4169	0	15	0	7.3	1.4
LH	359	0	11	2.0	-0.2	354	0	12	1	6.6	1.4
MF	39	0	3	1.4	0.0	39	0	3	0	7.6	2.0
SV	78	0	5	2.0	0.5	78	0	5	0	11.4	4.4
M	183	4	100	3.6	1.3	184	0	100	0	14.1	3.4
N	172	1	5	2.8	1.4	180	0	3	0	9.6	0.5

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:December, 1995

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :100 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBLK	00	Z	100	1	0	0.0	41.0	-41.0
EHOA	00	Z	100	1	0	0.0	2.0	2.0
EHOA	12	Z	100	6	0	12.7	17.6	12.2
FN	00	Z	100	1	0	0.0	6.0	-6.0
FNOR	00	Z	100	10	0	17.6	25.6	18.6
FNOR	12	Z	100	9	0	19.4	28.0	20.2
FNOU	00	Z	100	9	0	88.7	162.3	135.9
FNOU	12	Z	100	6	0	23.1	168.1	166.5
FNPH	00	Z	100	8	0	9.8	10.0	-1.6
FNPH	12	Z	100	2	0	32.0	37.7	-20.0
FNRS	00	Z	100	17	0	15.9	16.8	5.3
FNRS	12	Z	100	15	0	30.4	31.1	6.6
GACA	00	Z	100	28	0	18.5	22.1	12.1
GACA	12	Z	100	29	0	12.8	22.3	18.3
JCCX	00	Z	100	1	0	0.0	34.0	34.0
JDWX	00	Z	100	1	0	0.0	61.0	61.0
JIVB	00	Z	100	1	0	0.0	22.0	22.0
LDWR	00	Z	100	30	1	12.7	19.7	15.1
LDWR	12	Z	100	29	0	16.5	24.2	17.7
OXVH2	00	Z	100	11	0	19.2	35.2	29.5
OXVH2	12	Z	100	9	0	16.7	28.1	22.7
OXYH2	00	Z	100	14	0	23.5	24.5	-7.0
OXYH2	12	Z	100	13	0	63.3	66.7	21.0
SHIPAF	00	Z	100	5	0	20.3	27.2	18.0
SHIPAF	12	Z	100	4	0	12.0	71.0	70.0
SHIPS	00	Z	100	3	0	16.4	16.9	-4.0
SHIPS	12	Z	100	1	0	0.0	58.0	58.0
VLHJ	00	Z	100	1	0	0.0	39.0	39.0
V2EZ	00	Z	100	8	0	21.1	21.4	3.8
V2EZ	12	Z	100	7	0	13.3	22.9	18.7
V2GH	00	Z	100	20	0	29.8	31.9	11.2
V2GH	12	Z	100	18	0	26.6	32.8	19.2
V2LV	00	Z	100	28	0	17.2	22.8	15.0
V2LV	12	Z	100	28	0	23.0	36.8	28.7
V2LX	00	Z	100	20	0	14.1	17.2	9.8
V2LX	12	Z	100	16	0	39.1	56.1	40.3
ZDLG	00	Z	100	1	0	0.0	51.0	51.0
03953	00	Z	100	31	0	19.1	24.9	16.0
03953	12	Z	100	30	0	14.2	25.1	20.7
04018	00	Z	100	31	0	15.0	29.0	24.8
04018	12	Z	100	29	0	17.2	37.5	33.3
04220	00	Z	100	30	0	16.0	24.9	19.1
04220	12	Z	100	30	0	17.9	28.8	22.5
04270	00	Z	100	30	0	19.9	21.2	7.3
04270	12	Z	100	29	0	16.1	17.5	6.9
04339	00	Z	100	29	0	23.2	28.1	15.9
04339	12	Z	100	31	0	22.2	28.6	18.1
04360	00	Z	100	30	0	19.6	23.7	13.3
04360	12	Z	100	31	0	18.4	27.3	20.1
08001	00	Z	100	27	0	20.9	24.6	12.9
08001	12	Z	100	27	0	18.3	21.1	10.5
08508	00	Z	100	28	0	25.0	25.2	3.4
08508	12	Z	100	30	0	25.4	26.3	6.7
08594	12	Z	100	21	0	47.8	56.2	29.7
60020	00	Z	100	30	0	18.6	18.8	-2.7
60020	12	Z	100	29	0	19.1	19.2	-1.9
71600	00	Z	100	30	0	22.7	36.5	28.6
71600	12	Z	100	29	0	14.3	26.0	21.7
72201	00	Z	100	23	1	31.7	42.8	28.9
72201	12	Z	100	27	0	28.8	43.7	32.9

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
72402	00	Z	100	29	0	20.1	50.2	46.0
72402	12	Z	100	30	0	25.7	41.3	32.3
74494	00	Z	100	25	0	30.5	30.5	-0.7
74494	12	Z	100	26	0	23.6	27.3	-13.7
78016	00	Z	100	1	0	0.0	9.0	9.0
78016	12	Z	100	26	0	18.9	30.2	23.5

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:December, 1995

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBLK	00	Z	500	1	0	0.0	12.0	12.0
EHOA	00	Z	500	1	0	0.0	24.0	24.0
EHOA	12	Z	500	6	0	7.1	17.8	16.3
FN	00	Z	500	1	0	0.0	9.0	-9.0
FNOR	00	Z	500	12	0	7.7	10.9	7.8
FNOR	12	Z	500	12	0	11.6	11.6	0.3
FNOU	00	Z	500	3	4	68.5	86.4	52.7
FNOU	12	Z	500	4	5	72.3	130.2	108.3
FNPH	00	Z	500	12	0	8.9	9.1	-1.8
FNPH	12	Z	500	9	0	19.5	19.5	1.1
FNRS	00	Z	500	17	0	15.7	15.7	1.4
FNRS	12	Z	500	16	0	11.5	11.8	2.6
GACA	00	Z	500	28	0	7.7	7.9	1.4
GACA	12	Z	500	29	0	9.2	10.3	4.5
JCCX	00	Z	500	1	0	0.0	6.0	6.0
JDWX	00	Z	500	1	0	0.0	4.0	4.0
JIVB	00	Z	500	1	0	0.0	19.0	19.0
LDWR	00	Z	500	30	1	16.8	16.9	1.9
LDWR	12	Z	500	29	0	10.9	12.9	6.8
NPH	00	Z	500	1	0	0.0	8.0	8.0
OXVH2	00	Z	500	11	0	12.5	12.7	2.4
OXVH2	12	Z	500	10	0	18.1	18.7	-4.9
OXYH2	00	Z	500	14	0	17.2	17.4	-3.1
OXYH2	12	Z	500	16	0	14.4	14.4	0.8
SHIP	00	Z	500	1	0	0.0	8.0	8.0
SHIPAF	00	Z	500	10	0	9.9	24.6	22.5
SHIPAF	12	Z	500	6	0	16.3	30.4	25.7
SHIPS	00	Z	500	4	0	7.2	12.3	10.0
SHIPS	12	Z	500	1	0	0.0	26.0	26.0
VLHJ	00	Z	500	1	0	0.0	3.0	-3.0
V2EZ	00	Z	500	8	0	16.5	16.9	3.3
V2EZ	12	Z	500	7	0	7.4	11.7	9.0
V2GH	00	Z	500	20	0	15.6	15.8	-2.4
V2GH	12	Z	500	18	0	17.9	20.7	10.4
V2LV	00	Z	500	31	0	12.4	12.4	-0.3
V2LV	12	Z	500	28	0	9.6	10.5	4.3
V2LX	00	Z	500	25	0	12.9	14.2	5.8
V2LX	12	Z	500	24	0	25.9	30.3	15.8
ZDLG	00	Z	500	1	0	0.0	11.0	11.0
03953	00	Z	500	31	0	9.2	9.3	1.4
03953	12	Z	500	31	0	7.9	9.8	5.9
04018	00	Z	500	31	0	13.6	15.1	6.5
04018	12	Z	500	29	0	12.4	17.5	12.3
04220	00	Z	500	31	0	18.2	21.6	11.6
04220	12	Z	500	30	0	13.4	17.3	11.0
04270	00	Z	500	31	0	13.4	13.5	-0.7
04270	12	Z	500	31	0	16.5	16.6	1.4
04339	00	Z	500	30	0	18.6	19.1	4.3
04339	12	Z	500	31	0	16.1	16.2	-1.6
04360	00	Z	500	30	0	13.1	14.0	4.9
04360	12	Z	500	31	0	14.1	14.6	3.6
08001	00	Z	500	30	0	14.4	14.9	-3.6
08001	12	Z	500	27	0	20.7	21.9	-7.0
08508	00	Z	500	31	0	15.0	18.3	-10.5
08508	12	Z	500	30	0	14.3	18.2	-11.4
08594	12	Z	500	19	2	22.9	22.9	1.3
60020	00	Z	500	30	0	12.2	14.5	8.0
60020	12	Z	500	29	0	13.0	16.1	9.6
71600	00	Z	500	30	0	17.1	18.2	6.3
71600	12	Z	500	29	0	15.5	16.5	5.7

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
72201	00	Z	500	29	0	22.5	26.3	13.7
72201	12	Z	500	29	0	10.5	13.4	8.3
72402	00	Z	500	31	0	9.7	16.2	13.0
72402	12	Z	500	30	0	9.4	15.9	12.8
74494	00	Z	500	31	0	11.6	11.7	-1.3
74494	12	Z	500	31	0	15.1	15.6	-4.2
78016	00	Z	500	1	0	0.0	3.0	3.0
78016	12	Z	500	27	0	9.8	11.8	6.7

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:December, 1995

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from Bracknell global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :100 hPa.

Element monitored :VECTOR WIND in m s^{-1}

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:UBIAS,VBIAS :Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBLK	00	V	100	1	0	0	0.0	-3.0	2.1
EHOA	00	V	100	1	0	0	2.7	6.6	1.1
EHOA	12	V	100	6	0	0	2.7	-0.3	4.1
FN	00	V	100	1	0	0	2.7	2.3	-6.3
FNOR	00	V	100	10	0	0	2.7	1.8	-0.1
FNOR	12	V	100	9	0	0	5.3	-1.5	-0.6
FNOU	00	V	100	9	0	0	5.3	1.1	-2.5
FNOU	12	V	100	6	0	0	5.3	-7.8	-0.3
FNPH	00	V	100	5	0	0	5.3	1.1	-5.4
FNPH	12	V	100	1	0	0	5.3	0.7	-3.6
FNRS	00	V	100	17	0	0	5.3	-2.4	0.2
FNRS	12	V	100	14	0	0	5.4	-3.0	0.1
GACA	00	V	100	28	0	0	5.1	0.0	-0.4
GACA	12	V	100	28	0	0	2.9	-0.2	-1.8
JCCX	00	V	100	1	0	0	2.9	-3.9	-3.9
JDWX	00	V	100	1	0	0	2.9	-1.4	1.3
JIVB	00	V	100	1	0	0	2.9	-4.4	-2.8
LDWR	00	V	100	31	0	3	2.9	-0.2	-0.2
LDWR	12	V	100	29	0	0	2.8	-0.3	-1.9
OXVH2	00	V	100	11	0	0	2.9	-0.6	0.3
OXVH2	12	V	100	9	0	0	2.6	-0.5	0.7
OXYH2	00	V	100	14	0	0	2.6	-0.1	-1.0
OXYH2	12	V	100	13	0	0	3.6	-0.4	-0.3
SHIPAF	00	V	100	4	0	0	3.1	-11.3	0.8
SHIPAF	12	V	100	4	0	25	3.1	-5.8	3.6
SHIPS	00	V	100	2	0	0	3.1	-7.6	4.0
SHIPS	12	V	100	1	0	0	3.1	-2.2	4.3
VLHJ	00	V	100	1	0	0	3.1	0.6	-0.8
V2EZ	00	V	100	8	0	0	3.1	1.6	-1.2
V2EZ	12	V	100	7	0	0	3.1	1.1	0.3
V2GH	00	V	100	20	0	0	3.1	-2.5	-0.2
V2GH	12	V	100	18	0	5	4.4	-6.1	-0.4
V2LV	00	V	100	28	0	0	6.5	0.4	-0.5
V2LV	12	V	100	26	0	3	3.6	-0.5	-0.6
V2LX	00	V	100	19	0	0	3.6	-1.4	-1.7
V2LX	12	V	100	16	0	6	4.3	-2.5	-3.6
03953	00	V	100	28	0	0	3.0	-0.6	-0.8
03953	12	V	100	30	0	0	2.9	-0.2	-1.0
04018	00	V	100	31	0	0	2.8	-0.5	0.0
04018	12	V	100	28	0	0	3.7	-0.2	-0.2
04220	00	V	100	29	0	0	2.9	0.7	1.1
04220	12	V	100	30	0	0	2.5	-0.1	0.9
04270	00	V	100	30	0	0	2.8	-0.1	0.1
04270	12	V	100	28	0	0	2.9	-1.2	0.9
04339	00	V	100	29	0	0	3.0	0.1	-0.9
04339	12	V	100	31	0	3	3.4	-1.5	-1.4
04360	00	V	100	30	0	0	4.9	-0.8	0.9
04360	12	V	100	30	0	0	2.9	-1.0	-0.8
08001	00	V	100	27	0	0	3.5	1.0	0.2
08001	12	V	100	27	0	0	2.5	-1.1	-1.0
08508	00	V	100	28	0	0	4.7	-1.3	-0.8
08508	12	V	100	31	0	0	3.8	-3.0	0.2
08594	12	V	100	23	0	0	4.7	4.6	0.6
60020	00	V	100	30	0	0	2.3	0.2	0.2
60020	12	V	100	29	0	0	3.2	-2.9	1.2
71600	00	V	100	30	0	0	3.7	0.6	1.0
71600	12	V	100	29	0	0	3.1	0.1	0.7
72201	00	V	100	23	1	4	1.9	3.1	2.2
72201	12	V	100	26	0	0	5.1	0.1	-0.8
72402	00	V	100	28	0	0	5.1	1.0	-0.7

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
72402	12	V	100	30	0	0	3.9	1.0	-0.5
74494	00	V	100	24	0	0	3.6	-0.5	2.2
74494	12	V	100	24	0	0	3.1	-1.0	2.0
78016	00	V	100	1	0	0	4.9	4.9	0.9
78016	12	V	100	25	0	0	4.9	-2.3	-0.2

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH:December, 1995

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS:	Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBLK	00	V	500	1	0	0	7.3	-3.3	1.1
EHOA	00	V	500	1	0	0	5.5	0.3	-2.3
EHOA	12	V	500	6	0	0	5.5	-1.8	-1.4
FN	00	V	500	1	0	0	5.5	0.1	1.4
FNOR	00	V	500	12	0	0	5.5	0.4	-1.0
FNOR	12	V	500	12	0	0	2.4	0.3	-0.2
FNOU	00	V	500	7	0	0	3.1	0.4	-0.8
FNOU	12	V	500	9	1	10	3.1	-10.3	2.9
FNPH	00	V	500	11	0	0	5.4	-1.9	0.3
FNPH	12	V	500	7	0	0	3.5	-0.6	-0.1
FNRS	00	V	500	17	0	0	3.5	0.6	-0.1
FNRS	12	V	500	15	0	0	3.2	-0.6	-0.2
GACA	00	V	500	28	0	0	3.1	0.8	0.7
GACA	12	V	500	29	0	0	3.0	-1.3	0.7
JCCX	00	V	500	1	0	0	3.4	1.5	0.4
JDWX	00	V	500	1	0	0	3.4	0.4	-0.5
JIVB	00	V	500	1	0	0	3.4	1.1	0.3
LDWR	00	V	500	31	0	0	3.4	0.8	-0.1
LDWR	12	V	500	29	0	0	3.9	0.1	-0.4
NPH	00	V	500	1	0	0	3.2	-4.9	-2.4
OXVH2	00	V	500	11	0	0	3.2	1.8	0.0
OXVH2	12	V	500	10	0	0	6.6	0.6	-0.1
OXYH2	00	V	500	14	0	0	2.7	0.4	0.5
OXYH2	12	V	500	15	0	0	3.5	-0.1	-1.1
SHIP	00	V	500	1	0	0	3.4	-4.9	-2.4
SHIPAF	00	V	500	9	0	0	3.4	-4.2	0.5
SHIPAF	12	V	500	6	0	16	3.4	-1.3	-0.5
SHIPS	00	V	500	4	0	0	3.4	-0.7	1.8
SHIPS	12	V	500	1	0	0	3.4	1.4	-3.1
VLHJ	00	V	500	1	0	0	3.4	-0.3	1.8
V2EZ	00	V	500	8	0	0	3.4	0.9	-0.8
V2EZ	12	V	500	7	0	0	3.4	0.1	0.6
V2GH	00	V	500	20	0	0	3.4	0.6	0.8
V2GH	12	V	500	18	0	5	2.7	-1.4	0.4
V2LV	00	V	500	31	0	0	5.9	2.0	-0.2
V2LV	12	V	500	27	0	3	3.9	-0.1	0.5
V2LX	00	V	500	24	0	0	2.9	0.9	0.4
V2LX	12	V	500	24	0	4	1.8	-1.7	-1.0
ZDLG	00	V	500	1	0	0	7.4	1.9	-3.7
03953	00	V	500	31	0	0	2.7	0.6	-0.3
03953	12	V	500	31	0	0	4.3	-0.9	-0.2
04018	00	V	500	31	0	0	4.0	1.1	-0.8
04018	12	V	500	29	0	0	4.2	1.2	-1.1
04220	00	V	500	29	0	0	3.5	-0.2	0.4
04220	12	V	500	30	0	0	3.4	-0.2	-1.7
04270	00	V	500	31	0	0	5.4	1.1	0.7
04270	12	V	500	31	0	0	5.5	2.2	1.6
04339	00	V	500	30	0	0	4.4	-0.8	-0.9
04339	12	V	500	31	0	0	3.4	-0.2	0.8
04360	00	V	500	29	0	0	5.1	0.5	0.1
04360	12	V	500	31	0	0	3.2	0.1	0.1
08001	00	V	500	30	0	0	8.4	1.8	0.0
08001	12	V	500	26	0	0	5.7	-1.6	0.4
08508	00	V	500	31	0	0	4.2	-1.4	-0.2
08508	12	V	500	30	0	0	4.3	-0.6	0.4
08594	12	V	500	19	0	0	4.2	1.4	-1.5
60020	00	V	500	30	0	0	2.3	0.8	-0.8
60020	12	V	500	29	0	0	4.0	-1.3	0.6
71600	00	V	500	30	0	3	3.2	-0.1	0.7
71600	12	V	500	29	0	0	4.9	1.8	0.4

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
72201	00	V	500	29	0	0	3.9	-0.3	1.0
72201	12	V	500	28	0	0	3.0	-0.3	0.5
72402	00	V	500	29	0	0	2.6	1.1	0.1
72402	12	V	500	30	0	0	3.3	0.8	-0.1
74494	00	V	500	31	0	0	3.9	-0.3	0.4
74494	12	V	500	30	0	0	3.2	-0.3	0.0
78016	00	V	500	1	0	0	5.2	3.0	1.1
78016	12	V	500	27	0	0	5.2	3.2	1.1

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5, 10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45